

Monitoring Trends in Global Combat: A New Dataset of Battle Deaths[‡]

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Abstract. Both academic publications and public media often make inappropriate use of incommensurate conflict statistics, creating misleading impressions about patterns in global warfare. This article clarifies the distinction between combatant deaths, battle deaths, and war deaths. A new dataset of battle deaths in armed conflict is presented for the period 1946–2002. Global battle deaths have been decreasing over most of this period, mainly due to a decline in interstate and internationalised civil armed conflict. It is far more difficult to accurately assess the number of war deaths in conflicts both past and present. But there are compelling reasons to believe that there is a need for increased attention to non-battle causes of mortality, especially displacement and disease in conflict studies. Therefore, it is demographers, public health specialists, and epidemiologists who can best describe the true human cost of many recent armed conflicts and assess the actions necessary to reduce that toll.

Key words: battle deaths, casualties, combat mortality, conflict, war deaths

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Résumé. Que ce soit dans les publications de recherche ou les médias, l'usage de statistiques disproportionnées sur les victimes de conflits donne souvent une image déformée des conséquences des opérations de guerre. Cet article distingue les morts de combattants, des victimes des combats et des victimes de guerre. Il présente un nouvel ensemble de données sur les décès dus aux combats sur la période 1946 à 2002. Le total des décès dus aux combats a diminué sur presque toute la période du fait d'une réduction des conflits internationaux et entre états. Il est beaucoup plus difficile d'estimer le nombre total de décès dus à la guerre dans les conflits passés ou présents. Mais il y a de fortes raisons de croire qu'il est nécessaire, dans les études sur les conflits, de porter une plus grande attention aux causes de décès non directement dues aux combats, notamment celles liées au déplacement des populations et à la diffusion de maladies. C'est pourquoi ce sont les démographes, les spécialistes de santé

publique et les épidémiologistes qui sont le plus à même d'estimer le véritable coût humain de beaucoup de conflits récents et d'identifier les actions nécessaires à la réduction de ce fardeau.

Mots clés: décès au combat, décès de guerre, conflit, mortalité au combat, pertes militaires

1. Introduction

Estimating how many deaths a war has caused is an exercise of obvious importance but surprising complexity¹. Of course, relevant information is frequently concealed by parties to the conflict, destroyed in the course of the war, or never recorded at all. But an additional layer of confusion arises due to the complex and contradictory schemes that are used to account for war losses. Few who go in search of such statistics pay close attention to the maze of categories that militaries use to classify combat losses, and those formal schemes are often difficult to apply or even irrelevant in the context of civil wars or wars against informally organised insurgents. The result is that inaccurate or misleading fatality figures are frequently circulated widely, gaining credibility through mere repetition. One example is the oft-repeated observation that 90% of the casualties in today's wars are civilians (Sivard, 1996, p. 17), as against only 5% in World War I (Chesterman, 2001, p. 2). Yet, the 5% figure for World War I is far lower than the range cited by most historians (Clodfelter, 2002, p. 479), while the source of the estimate of 90% civilian casualties in modern wars has long vanished (Mack, 2005).

In order to understand trends in warfare across time or space, we need data that measure deaths due to armed conflicts in a consistent manner. This article begins by distinguishing three principal ways of counting war fatalities: combatant deaths, battle (or combat) deaths, and war deaths. These three measures are appropriate for answering different research questions, and we suggest some of the possibilities and limitations of each. We also clarify the distinction between battle deaths and one-sided violence. We then present a new dataset of battle deaths in state-based armed conflicts for the period after World War II (1946–2002). The new data have been gathered for conflicts recorded in the Uppsala/PRIO dataset of armed conflicts (Gleditsch et al., 2002; Harbom and Wallensteen, 2005). Versions of the data are also available for use with the Correlates of War (COW) data on wars 1900–1997 (Sarkees, 2000) and data on civil wars 1945–1999 compiled by Fearon and Laitin (2001). After presenting the data, we display our estimate of the trends in global and regional battle deaths 1946–2002. Battle violence has declined over the past 50 years due to a decline in major interstate conflict and large internationalised civil conflicts. However, in our final section, we point out that many conflicts

are characterised by numbers of non-violent deaths due to humanitarian crisis that far surpass the lives lost in combat. For that reason, demographers, epidemiologists and others who specialise in the scientific study of population will play an important role in investigating the relationship between conflict and humanitarian crisis and making recommendations on appropriate international responses.

2. Distinguishing among fatality statistics

War fatality statistics may be compiled with very different research needs in mind and there are a number of classification schemes for doing so. In this article, however, we seek to distinguish three of the most common: counts of combatant deaths, battle deaths (which we use synonymously with combat deaths), and war deaths. The theoretical uses of each of these measures can be quite different. We explain each term as we proceed, but Appendix A contains the formal definition of battle deaths used to code our dataset.

Among political scientists, military experts, and legal scholars one of the most commonly sought war fatality figures is that of combatant deaths. For example, the Correlates of War (COW) dataset on interstate wars, widely used by political scientists in quantitative study of conflict, records for each state involved “the number of battle-connected fatalities among military personnel” (Sarkees 2000, p. 128). Other compilations expand this definition somewhat and account for soldiers who are not formally attached to any state’s military.

Figures on combatant losses can be used to answer questions of strategy. Comparing the parties’ battle losses may reveal their military capacity and effectiveness, and be useful for evaluating their preparation for and execution of a war and their capacity to continue fighting it. Counting the number of non-violent deaths among combatants can be important to a study of campaign conditions, or to comparing militaries’ culture or organisational sophistication.

Comparisons of combatant to non-combatant deaths are also often used to illuminate normative questions. Such an accounting of war losses implies a distinction between legitimate targets in a war (combatants) and all other persons (such as captured soldiers and civilians). The laws of war contained in international treaties such as the Fourth Geneva Convention offer a degree of protection for civilians that is not extended to combatants and hold military forces responsible for the safety of civilians in the areas they control. Thus, investigation of war crimes can turn on accounts of war deaths that distinguish between combatants and civilians (e.g. Brunborg et al., 2003). Just war theory sets the benchmark of proportionality in order to evaluate the conduct of war by weighing the military objectives achieved against ‘collateral damage’ to non-combatants (Walzer, 1977). This kind of a

balancing analysis can be used to criticize certain modes of warfare as particularly indiscriminate, inhumane, or unjustifiably devastating to civilians.

By contrast, the measure we refer to as battle deaths includes all people, soldiers and civilians, killed in combat. Measuring battle deaths answers the question of how many people were killed in military operations during a war and, therefore, it is the best measure of the scale, scope, and nature of the military engagement that has taken place. It reflects the degree of military parity between the sides, how heavily armed they are, and how frequently and widely they engage each other.

Data on battle deaths are empirical measures of the size of combat operations. They lack the normative concerns of an accounting of combatant deaths that seeks to distinguish between legitimate and illegitimate targets and participants. For this reason, the concept of battle deaths is readily applied across a variety of types of conflicts. In today's dominant forms of conflict – civil wars, wars of insurgency, and asymmetric conflicts – the distinction between combatants and non-combatants may be very unclear or even entirely fluid, in sharp contrast to an idealised model of a conflict fought between formally organised state militaries. Even in wars fought by state militaries there is an increasing reliance on private military firms, whose personnel are not traditionally defined as combatants (Keefe, 2004). Thus a focus on combatant deaths rather than battle deaths could seriously underestimate the scope of military combat in many, if not most, of today's wars.

The number of battle deaths provides an exhaustive measure of how many have died in combat operations. But it does not provide a remotely adequate account of the true human costs of conflict. War kills people in less direct (but highly predictable) ways, especially when it causes the collapse of a society's economy, infrastructure of health and human services, and public safety systems. As Figure 1 lays out, the toll of a war is comprised of not only battle deaths but deaths due to upsurges in one-sided violence (e.g. the execution of prisoners of war or a genocidal campaign such as the Holocaust or the Armenian Genocide); increases in criminal violence (e.g. an upsurge in crime following the collapse of local policing, as in post-Baathist Iraq); increases in unorganised violence (e.g. deadly food riots); and increases in non-violent causes of mortality such as disease and starvation. A complete accounting of the true human costs of conflict would include – in addition to fatalities – non-fatal injuries, disability, reduced life expectancy, sexual violence, psychological trauma, displacement, loss of property and livelihood, damage to social capital and infrastructure, environmental damage, destruction of cultural treasures. Tallying the cost of a war quickly defies straightforward accounting.²

An account of war deaths must record all people killed in battle as well as all those whose deaths were the result of the changed social conditions caused by the war. Thus, measuring war related deaths involves comparing the

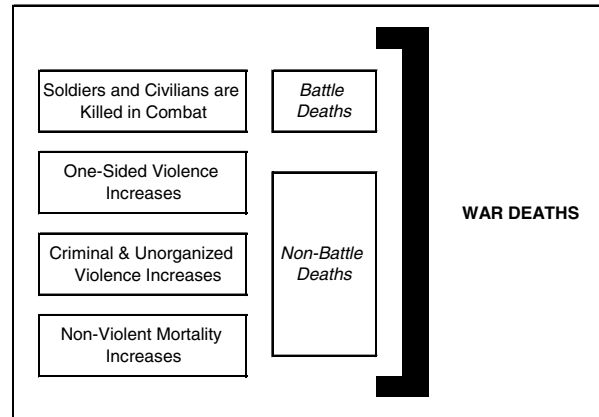


Figure 1. Sources of war deaths.

number of deaths that occurred due to a conflict against the counterfactual scenario of peace (Li and Wen, 2005).³ It is necessary to judge whether certain events – such as a famine or riot – would not have happened at all if peace had prevailed, and to measure the degree of elevation (or depression) in peacetime risks of mortality from factors like crime or malnutrition. Making such estimates becomes quite difficult when there is no meaningful peacetime benchmark to compare measured mortality rates against – as in Burma, where civil war has been more or less continuous since independence – or when a complex sequence of events that includes armed conflict lies behind certain events or social changes. For example, conflict may have abetted the spread of HIV/AIDS in Africa (Elbe, 2002), but the epidemic has other causes as well. Separatist conflict in the Caucasus has fed into black market economies and increased violent crime, but so has the difficult transition to a market economy. Finally, when measuring war deaths it is difficult to determine the relevant time frame. Indirect causes of higher mortality will continue after the battles have stopped. How many years of elevated mortality due to, for instance, depressed economic performance, environmental degradation, or the spread of sexually transmitted diseases should be attached to the terminated war and can those impacts be measured in a reliable way?

Despite the definitional ambiguities of trying to account for war deaths, study of the linkages between human insecurity and conflict and between humanitarian crisis and conflict is vital. Throughout history wars have been associated with humanitarian crisis. Even the most devastating instances of battle violence in human history – World Wars I and II – are estimated to have led to nearly as many non-battle deaths as combat fatalities, and

perhaps more (Clodfelter, 2002, p. 479 and 581). But although the elevated mortality caused by war is predictable, attempts to prevent or ameliorate non-battle impacts of war are too often thwarted by the political and security dynamics of the conflict itself and by international indifference or clumsiness. Also, the linkages between warfare, humanitarian crisis, and human insecurity have not been as widely studied as the political and military factors that lie behind battle and battle deaths.

Some recent work has discussed or estimated the long-term public health consequences of war (Krug et al., 2002; Murray et al., 2002; Black et al., 2003; Ghobarah et al., 2003). There is also an increasing amount of original research on specific populations in conflict by scholars in a variety of disciplines, including recent studies of Afghanistan (Sliwinski, 1989; Benini and Moulton, 2004), Bosnia–Herzegovina (Brunborg et al., 2003), the Democratic Republic of Congo (Roberts, 2000; Roberts et al., 2001, 2003), Guatemala (Ball et al., 1999), and Rwanda (Verwimp, 2003). Relevant health and demographic data are also continually being gathered by many humanitarian agencies, such as the International Committee of the Red Cross (ICRC) or Epicentre, which works with Médecins Sans Frontières, in order to assess the humanitarian needs of war-affected populations. The World Health Organization's (WHO) Collaborating Centre for Research on Epidemiology and Disasters (CEDAT) is currently building a repository for scientific studies of conflict-affected populations, and promises to become an important resource for those interested in this topic. The second volume of the *Human Security Report* published by the Centre for Human Security at the Liu Institute for Global Issues, University of British Columbia will focus on 'the war/disease nexus' (Mack, 2005).⁴

3. Distinguishing battle deaths from one-sided violence

Our definition of battle deaths includes a distinction between battle deaths and one-sided violence. It may be necessary to explain in more detail why we do not define one-sided violence to be battle-related, even though it may be of a political character and intimately related to the issues at the heart of an ongoing conflict. Examples of such one-sided violence include security forces firing on unarmed protestors, summary executions of prisoners, and genocide.

Following most studies of armed conflict, we have conceived battle as a two-sided phenomenon. Combat is political violence against any target, military or civilian, in which the perpetrator faces the immediate threat of lethal force being used by the opposing forces against him/her and/or allied fighters. Again, our definition of battle deaths is empirical rather than normative. Rather than judging the legitimacy of certain targets or tactics for collective violence as in humanitarian law (Schabas, 2001), we focus on the degree of meaningful armed resistance. Thus, for example, terrorist attacks against civilians were included as battle acts in our dataset because the

perpetrators must take measures to avoid opposing security forces. The execution of kidnapped civilians was excluded because these acts are carried out in an environment of impunity. Words such as ‘massacre’ are sometimes used to describe very lop-sided battle outcomes or attacks against soft targets. In general, we consider such events to be battle violence. We judge fatal incidents to be one-sided violence – and thus exclude them from our count of battle deaths – only when there is evidence of sustained destruction of non-combatants taking place outside of the context of any reciprocal threat of lethal force. The Cambodian and Rwandan genocides fall into this category.

We have attempted to make this distinction between battle violence and one-sided violence because we believe that battle deaths are the best measure of combat intensity. Battle deaths are not a representation of the human costs of war, which should obviously include all violent death caused by the conflict, nor the basis for a normative evaluation of war. Data on one-sided violence is of critical importance for scholarship on genocide and politicide; for investigations of war crimes and crimes against humanity by courts and truth commissions; and for evaluation of the trends in one-sided violence and the effects of changing international norms and institutions for evaluating and prosecuting war crimes.⁵

Battle deaths data, however, provide a more accurate measurement of the scope and scale of contested military engagement. On the one hand, we do not recommend using a very narrow definition of combat deaths based on the legitimacy of targets and tactics in order to measure the intensity of battle violence. For example, although terrorist attacks against civilians are not a sanctioned mode of warfare they are important to understanding the degree of armed contest taking place in many conflicts.

On the other hand, by defining one-sided violence by the absence of armed resistance it is possible to gain both a clear idea of the amount of military engagement taking place (the number of battle deaths) and to study the relationship of combat to one-sided violence. Measurements of the two are not simply proxies for each other. For example, it has been argued that the 1994 genocide of Rwandan Tutsis could have been halted within a week by even a small but credible United Nations force (Feil, 1998), suggesting that the perpetrators lacked the capacity to continue their program of terror in the face of even limited effective resistance. Demographic study has shown that the intensity of the Rwandan genocide was greatest in those areas removed from battles between the Hutu and Tutsi armies where Hutu Interhamwe could act with impunity (Verwimp, 2003). Because one-sided violence often depends on minimal threat of resistance or retaliation, battle violence and one-sided violence have often varied inversely rather than directly, suggesting that the relationship between them deserves careful study. Kalyvas (2004) finds that selective execution of civilians during the Greek Civil War was suppressed in areas of the highest combat intensity. The Khmer Rouge began

its ethnic and political terror, while it was still a rebel group, but the genocide began in earnest when it won full military control of the country.

4. A new dataset of battle deaths

Several datasets have tracked fatalities in war. The best known is the list of wars produced by the COW Project (Sarkees, 2000), which includes interstate, intrastate, and extra-systemic (more commonly called colonial or imperial) wars in which more than 1000 combatant deaths occurred (1000 deaths per year in the case of interstate conflict). The COW data estimate combatant deaths by state participant, but do not disaggregate their data into annual estimates. A related project, the Militarized International Dispute Dataset, estimates the death toll among state militaries in smaller scale clashes of a purely interstate nature. In the past, the COW and the MID projects have drawn criticism for their exclusive focus on deaths among states' armed forces (Henderson, 2002). However, Lacina et al. (2005) demonstrate that the COW data suffers from a more serious limitation: supposedly comparable figures actually vary indiscriminately between recording combatant, battle, and war deaths. For interstate wars, the COW project has tended to record the number of military personnel killed in battle or the number of military deaths from all causes, while for many extra-systemic and intrastate wars the COW dataset estimates all war deaths, including those due to disease and starvation. The result is that the COW data cannot be accurately compared between types of war, decades, or regions.

Similar problems of comparability occur in fatality compilations that attempt to record war deaths (Eckhardt, 1996; Rummel, 1997; Leitenberg, 2003). In these cases, the most serious problem is that reliable information on war deaths in many long-terminated conflicts is simply not available and that experts in conflict studies are often ill-equipped to estimate non-battle levels of mortality. Reliable accounts of the earliest conflicts that appear in such compilations are sparse or non-existent, let alone scientific demographic and mortality data. For example, although the number of Herero and Nama destroyed by the German military in south-western Africa in 1904–1905 was of genocidal proportions (Hull, 2003), scholars can only speculate on the number of people who were killed outright or forced into the desert to starve because no pre-war census of the population was ever taken (Pakenham, 1992, pp. 614–615). There is necessarily great uncertainty in any compilation of war deaths that attempts even modest backdating.

We present here a dataset of estimates for battle deaths in armed conflicts from 1946 to 2002. It is, we believe, the first fatality compilation for use in the study of armed conflict that focuses on battle deaths rather than combatant or war deaths. As we argued above, battle deaths are the most appropriate measure of the scale of military combat taking place in a conflict, especially

given the fluidity of the lines between combatants and civilians in so many armed conflicts. Tracking trends in the number of battle deaths is of great interest to those who study patterns of combat activity world-wide and in the context of certain eras, regions, and cases.

The new dataset was collected for the dataset produced by the Uppsala/PRIO Conflict Data Project (Gleditsch et al., 2002; Harbom and Wallensteen, 2005), which records state-based armed conflicts that claim at least 25 battle deaths per year. Conflicts may be extra-systemic, interstate, internal (i.e. civil), or internationalised internal struggles (for additional information see the codebook: Strand et al., 2003). The new battle deaths data have also been adapted for use with the Correlates of War data on extra-systemic, interstate, and intrastate wars from 1900–1997 in which at least 1000 combatants died (Sarkees, 2000) and with the Fearon and Laitin (2001) dataset of civil wars 1945–1999 that killed at least 1000 persons.

Our dataset draws on leading compendia of casualty statistics (e.g. Harff and Gurr, 1988; Laffin, 1994; Bercovitch and Jackson, 1997; Rummel, 1997; Brogan, 1998; Clodfelter, 2002; Ghosn and Palmer, 2003; State Failure Task Force, 2003); on conflict monitoring projects (e.g. International Institute for Strategic Studies, 2003; Project Ploughshares, 2003); on the annual tables of major armed conflicts in the SIPRI Yearbooks (see, most recently, Wiharta and Anthony, 2003); as well as consultations with regional experts. These sources were augmented with studies of individual cases (e.g. Ball et al., 1999; Sutton, 2001); archival materials from government sources (e.g. Anuškauskas, 2000); media sources and published studies based on compiled media data (e.g. Mueller, 1995; Dunlop, 2000); and original demographic and epidemiological work where it was available.⁶

5. Global trends in battle deaths: good and bad news

There has been a great deal of alarmist writing about the bloody post-Cold War era, often painted in the media as a world of unprecedented internecine conflict. Snow (1996, pp. 1–2, 105–113) holds, for instance, that armed conflicts of the 1990s, which he calls “uncivil wars,” were less principled, less focused on political goals, and therefore bloodier than many in the past. Sarkees et al. (2003, p. 65) strike a similar note of pessimism, arguing that the risk of suffering death in battle has trended neither up nor down since the Napoleonic wars. Such remarks are surprising given that organisations that monitor the global incidence of armed conflict have found that the late 1990s and first years of the twenty-first century enjoyed a downward trend in warfare between and within states (Gleditsch et al., 2002; State Failure Task Force, 2003).

What do global trends in battle deaths tell us about the amount of armed combat taking place in the world today? Figure 2 provides our estimate of

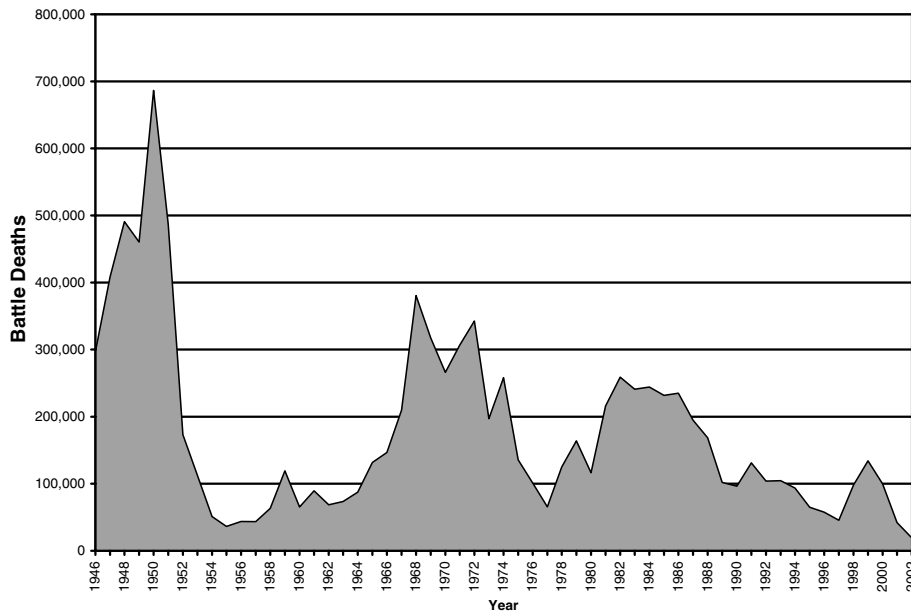


Figure 2. Battle deaths worldwide, 1946–2002.

the global trend in battle deaths from 1946 to 2002 in state-based armed conflicts, while Table 1 notes the five conflicts that inflicted the largest numbers of battle deaths during that era. Figure 2 reveals that the long-term trend in battle deaths has been sharply downward. The late 1940s and early 1950s were very grim; the combined impact of the Chinese Civil War and the Korean War were augmented by the French Indochina War (estimated to have killed 365,000 in battle) and the Greek Civil War (154,000 battle deaths). The Vietnam War forms the next hump in the dataset, and the combined impacts of the Iran–Iraq war and the Soviet intervention in

Table 1. Conflicts with the largest battle death totals

Conflict	Years	Best estimate of battle deaths*
Vietnam War	1955–1975	2,097,705*
Korean War	1950–1953	1,254,811*
Chinese Civil War	1946–1949	1,200,000
Iran–Iraq War	1980–1988	644,500
Afghan Civil War	1978–2002	562,995*

* The precision of these figures is due to exact accounting of Western losses; the accuracy should be regarded as spurious.

Afghanistan constitute the third peak. In the mid-1990s, the world seemed to enter another trough in the number of battle deaths, until the war in the Democratic Republic of Congo (DRC), with an estimated 145,000 battle deaths in 1998–2001, and the interstate war between Ethiopia and Eritrea that killed 50,000 from 1998 to 2000. Each peak is significantly lower than the previous one and the trough in 2002 is the lowest for the entire period.⁷

Thus, the good news about battle deaths since World War II is that although there have been multiple major international security crises their military scale has progressively diminished. This may reflect increasingly pacific behavior among the great powers, who possess the resources and the military technology (such as aerial power and heavy artillery) to inflict large numbers of battle deaths in the wars they start, join, or provide with support. Each of the five largest conflicts identified was a war of this type. The Korean War and the Vietnam War were massive Cold War confrontations, and the Chinese Civil War was also fed by superpower military assistance. The wars between Iran and Iraq and the Soviet invasion of Afghanistan were also driven in part by the logic of Cold War politics and the parties were armed by the US and USSR. By contrast, declining tension between the superpowers hastened the de-escalation of the Soviet war in Afghanistan and slowed rates of battle deaths there in the late 1980s (Sliwinski, 1989, pp. 40–41). And while the recent war in the DRC involved regional armies, it was not a proxy war for major military powers. The most cataclysmic battles of the past half-century were related to the now defunct ideological polarisation between East and West.

The very large conflicts that these peaks represent almost overwhelm the rest of the curve: together, the five conflicts in Table 1 constitute more than half of the estimated toll of global battle deaths in the period 1946–2002, accounting for about 5.76 million battle deaths out of a total of about 10 million. The five wars with the highest number of battle deaths, especially the Vietnam and Korean Wars, are such outliers that they eclipse most of the rest of the story of global warfare. Figure 3 shows the graph of global battle deaths with those five largest conflicts excluded. What seemed like a downward trend in battle violence vanishes and the world seems to fluctuate between high and low war intensity years (although the final year is the lowest for the entire period). Thus, the bad news about global battle deaths is that, although the now-terminated Cold War played a devastating role in driving major battle death events, there is a persistence of smaller scale, more diverse conflicts, the trend in which is less obvious.

Even so, the data by no means support the sombre picture painted by Sarkees et al. (2003) of a world of basically constant total rates of combat. Table 2 shows that the mean and median numbers of battle deaths in a year of conflict after the Cold War era were significantly lower than during the Cold War. Nor do we find support for Snow's hypothesis of increasingly

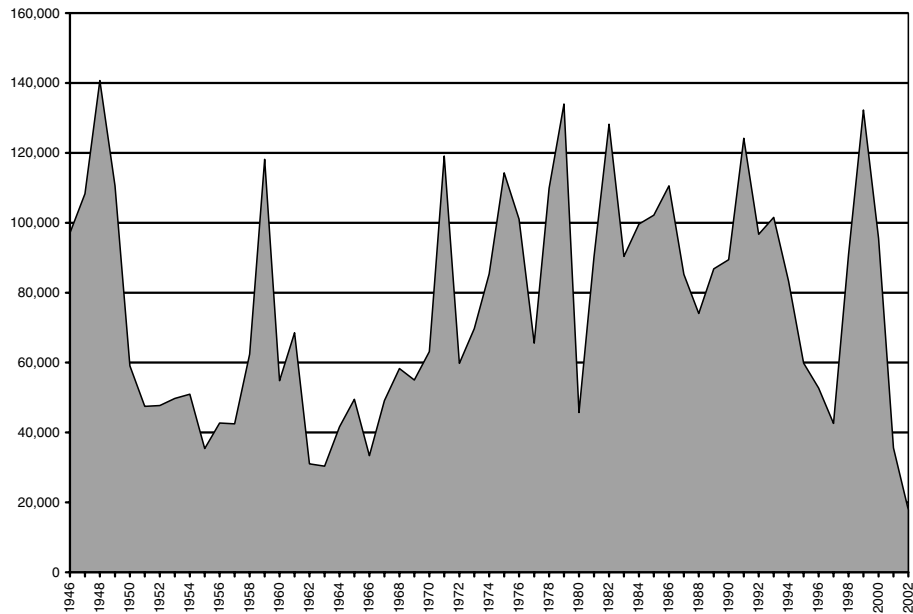


Figure 3. Battle deaths worldwide, 1946–2002, removing the five largest conflicts.

Table 2. Battle deaths by time period and conflict type

	Comparing Cold War vs. Post-Cold War conflict			
	All conflicts		Internal conflicts*	
Statistic	1946–1989	1990–2002	1946–1989	1990–2002
No. of conflict-years	1213	526	993	510
Mean	7430	2070	4250	1980
Median	500	300	439	308
Comparing types of conflict				
Statistic	Extrasystemic and interstate		Internal conflicts*	
No. of conflict-years	236		1503	
Mean	20,620		3480	
Median	945		373	

* Includes internationalised internal wars.

bloody civil conflicts, at least when measured according to the number of battle deaths; the mean and median number of combat fatalities in a year of internal or internationalised internal conflict have fallen dramatically since the end of the Cold War.

Table 3. Share of battle deaths that occurred in internal conflicts (%)

Years	Battle deaths in internal conflicts*
1946–1949	87
1950s	8
1960s	29
1970s	43
1980s	67
1990s	92
2000–02	93
1946–2002	52

*Includes internationalised internal conflicts.

Civil war has been the dominant form of conflict for several decades, as Table 3 demonstrates. For the whole period after World War II just over half the battle deaths occurred in internal conflicts, but during the three decades in the middle of the Cold War, there were more deaths in interstate and extra-systemic conflicts.⁸ Table 2 shows that the mean values for interstate and extra-systemic conflict-years are much larger than for internal conflicts, although the median value is less dramatically so. The fact that such conflicts are increasingly rare no doubt accounts for some of the downward trend in global battle deaths.

Figure 4 gives a regional picture of the trend in battle deaths (see Appendix B for regional definitions). This is a stacked graph, in which each region is represented by the area between those below and above it. The sum of the stacked regional data provides the global estimate of battle deaths. The most remarkable transformation in the security status of any region is that of East and South East Asia. The greatest battle violence of the past 50 years took place in China, Korea, and the Indochinese peninsula. By contrast, since the 1980s, the region has been increasingly free of combat due to the de-escalation of Cold War conflict in Indochina and the Western rapprochement with China.

In the most recent years, Sub-Saharan Africa and Central and South Asia are the primary drivers of battle deaths. The most common conflict scenario today is civil war and/or state failure in an impoverished society governed, if at all, by a very weak post-colonial regime (Collier et al., 2003; Fearon and Laitin, 2004; Mack, 2005). Most of these conflicts are neglected by major powers, and the combatants often remain relatively ill-organised and poorly equipped when compared to those who fought in the civil conflicts that turned into proxy wars during the Cold War. The amount of actual military engagement (rather than tactics of insurgency or banditry) in many modern civil wars has been quite limited and sporadic, even desultory (Mueller,

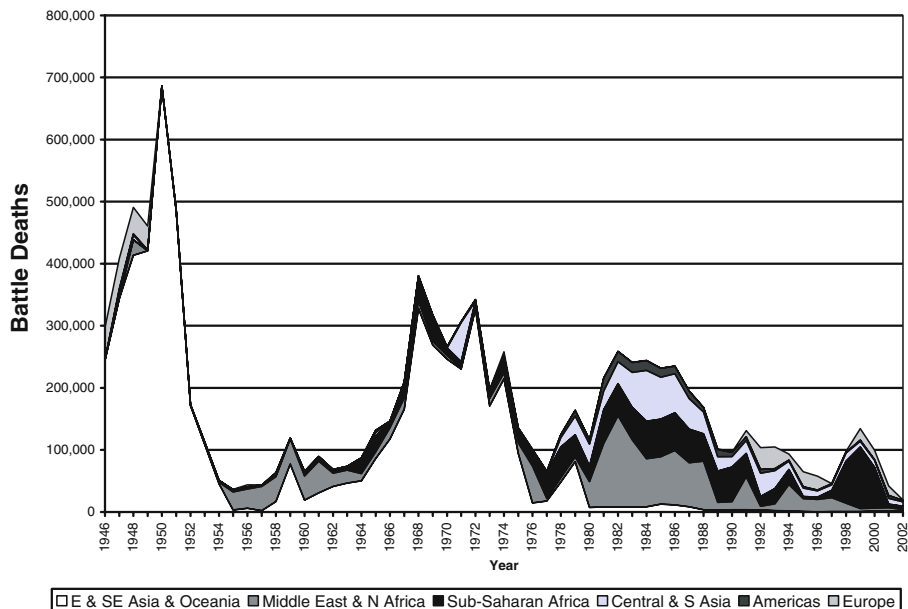


Figure 4. Battle deaths by region, 1946–2002.

2003). Thus these civil conflicts, though often intractable and devastating, have produced fewer battle deaths than their Cold War counterparts.

6. Winning the battles and losing the wars?

Battle deaths do not tell the full story of the human cost of war. Although it seems plausible to expect that the global downturn in battle violence over the past half-century has been accompanied by some amelioration in numbers of war deaths, we do not have the scientific data on war deaths available to test this contention or provide a sufficient account of how war has affected human populations over the past decades.

We suspect that war-related deaths were less severe in the late 1990s than in previous decades primarily because the number of ongoing conflicts declined. At the same time, it seems likely that the post-Cold War environment has been more effective in reducing the incidence of conflict and battle deaths than in addressing the scourge of non-battle fatalities in those conflicts that do occur. Excess mortality is probably increased because most armed conflicts now take place in poor countries with a weak infrastructure and limited medical facilities.

Table 4 lists nine African conflicts that caused very large numbers of non-violent war deaths due to insecurity, displacement, deprivation, and disease.

The estimates of battle deaths come from our dataset, the estimates of total war related deaths are figures that are widely cited in media and conflict literature, although, to our knowledge, only the figures for the Democratic Republic of Congo (DRC) are based on a scientific study of the affected population.

In the DRC, the International Rescue Committee conducted a series of household surveys in order to estimate the impact of the internationalised civil war fought there from 1998–2001 (Roberts, 2000; Roberts et al., 2001, 2003). The researchers estimate that roughly 350,000 persons died due to violence in that time period, while the total toll of war-related deaths, primarily driven by disease, is estimated at 2.5 million, a ratio of roughly one to six. Combat deaths constitute an even smaller category than violent fatalities; our best estimate of battle deaths in the DRC is 145,000 (see the DRC conflict report within International Institute for Strategic Studies, 2003).⁹ If these figures are accurate, battle deaths constituted only about 6% of the fatalities due to the war. Table 4 suggests that this disparity between battle deaths and war deaths is not unique. Although there is great uncertainty associated with these data, they strongly suggest that protracted conflicts in poor countries claim the vast majority of their victims off the battlefield. This is especially dramatic in cases where conflict causes famine, as has occurred in Ethiopia and the Sudan.

Although poorly equipped and organised armies may have relatively little capacity to cause large numbers of battle deaths or limited will to engage other combatants, they may still be able to cause high numbers of war deaths. In a very poor nation with weak state structures, it may not require great

Table 4. Deaths in selected conflicts in Africa

Country	Years	Estimates of total war deaths	Battle deaths	Percentage battle dead
Sudan (Anyanya rebellion)	1963–1973	250,000–750,000	20,000	3–8%
Nigeria (Biafra Rebellion)	1967–1970	500,000 to 2 million	75,000	4–15%
Angola	1975–2002	1.5 million	160,475	11%
Ethiopia (not inc. Eritrean insurgency)	1976–1991	1–2 million	16,000	< 2%
Mozambique	1976–1992	500,000 to 1 million	145,400	15–29%
Somalia	1981–1996	250,000 to 350,000 (to mid-1990s)	66,750	19–27%
Sudan	1983–2002	2 million	55,500	3%
Liberia	1989–1996	150,000–200,000	23,500	12–16%
Democratic Republic of Congo	1998–2001	2.5 million	145,000	6%

military capacity to collapse the infrastructure of health and human security and cause a full-blown humanitarian crisis. For example, a small force can cut transportation links vital to food security, as demonstrated by the relatively limited military intervention required to break the siege of Mogadishu and relieve famine in Somalia in 1992–1993 (United Nations, 1996). With a greater percentage of contemporary wars being internal conflicts in poor states, it is likely that the number of global battle deaths has fallen far more precipitously than the count of war deaths. All of the conflicts in Table 4 occurred in Africa, the region that now accounts for the greatest share in global battle violence. In other regions, such as Central and South Asia and Europe, it has also been weak and poor states that have fallen prey to conflict.

Despite optimism in the early 1990s regarding the prospects for peace enforcement by the newly unified community of major powers acting through the United Nations, experiences with preventing the massive humanitarian crises caused by war have been mixed. The UN deployment to Somalia ended in humiliation, as did missions to the Balkans and Rwanda, dimming enthusiasm for multilateral international intervention in civil conflicts. The major powers have few strategic interests in many of the most conflict-prone regions, and major humanitarian crises in West Africa and the DRC have been largely ignored. In the summer of 2004 and early 2005, the grim scenario of a displaced population at risk and a humanitarian relief process stymied by insecurity and international inattention was playing out again in the Darfur region of the Sudan. Today the nexus between conflict, one-sided violence, and humanitarian crisis seems more important than ever.

7. Improving knowledge about deaths in war time

Media reports, government accounts, military data, and the analysis of historians and political scientists all play a role in establishing statistics for conflict deaths. However, the fields of demography and epidemiology are better equipped to scientifically examine and describe the impacts of armed conflict on human population, especially studying impacts beyond mortality such as changes in fertility or migration. The tools of scientific studies of population have already been used to provide data on a few recent conflicts that is of a precision and clarity far beyond that offered by other sources.

Where possible, we have made use of such data to compile a dataset of battle deaths over the past half-century. The results reveal interesting trends in global battle violence, considered both in terms of the impacts of the end of the Cold War and the changing fortunes of geographic regions. The declining numbers of major interstate conflicts and internationalised civil wars have led to a decline in global battle deaths. Presently, most warfare is in the form of civil conflict and wars of state failure taking place outside of

areas of the major powers' strategic interest. We expect that many of these conflicts will be characterised more by severe humanitarian crises than combat of the intensity seen during the Cold War. Thus, we are encouraged to see an increasing number of studies on the demography of conflict and conflict and public health. Security and conflict analysts will increasingly require such expertise in order to understand and address the true human costs of war.

Notes

[‡] The work reported here has been carried out in collaboration with a number of colleagues at the Centre for the Study of Civil War, the Uppsala Conflict Data Project, and the Centre for Human Security at the Liu Institute for Global Issues, University of British Columbia. We are grateful to our colleagues at all these three institutions as well as to Andy Mack, Daniel Muñoz-Rojas, Michael Spagat, and Juan Vargas for their comments, encouragement, and constructive criticisms. The referees and editors of this journal also provided valuable comments. Our work has been funded mainly by the Research Council of Norway, with additional contributions from the Centre for Human Security. The dataset described here, along with detailed documentation, can be downloaded from www.prio.no/cscw/cross/battledeaths.

¹ Throughout this article, we will use the terms 'armed conflict,' 'conflict,' and 'war' as synonyms. We also use 'battle' and 'combat' synonymously to refer to the act of military contest taking place within an armed conflict. For the more precise definition of state-based armed conflict upon which our dataset of battle deaths draws see Appendix A.

² For discussion of the long-term economic consequences of civil war, see the World Bank report on civil war (Collier et al., 2003) as well as Murdoch and Sandler (2002). For a project that undertakes comprehensive estimates of the impacts of war, see State Failure Task Force (2003).

³ Of course, an estimate of battle deaths also involves comparison with a counterfactual. For example, mortality rates among U.S. soldiers during the first Gulf War may actually have been lower than those among similar cohorts living in the U.S. (Wolfson and Smith, 1993). In most cases, however, the counterfactual scenario can probably be ignored when analyzing figures for battle deaths.

⁴ A planning report for the second volume of the Human Security Report (Mack, 2005) discusses the need to bring demography, public health, and epidemiology into conflict studies. See Centre for Human Security (2004).

⁵ While studies of genocide and politicide (Harff, 2003) find relationships with some of the same factors that predict to the onset of internal war (Fearon and Laitin, 2001; Hegre et al., 2001), the explanatory models are not identical. See also Valentino et al. (2004) on why civil wars involve differing amounts of targeting of civilians.

⁶ The dataset may contain much that is incomplete or inaccurate, but it has been compiled in the hope of constant improvement based on users' feedback. We have documented our source materials and coding decisions for each armed conflict. In some cases, we provide low and high estimates of battle deaths in a conflict, along with our best estimate.

⁷ The invasion and occupation of Iraq will undoubtedly form a new peak in the incidence of battle deaths beginning in 2003. It is not clear whether the final toll in battle deaths will surpass that in the DRC. On the basis of a sample survey, Roberts et al. (2004) estimate total excess death among Iraqis in the 18 months following invasion at 100,000. This is seven times the number of Iraqi citizens killed by coalition forces according to the leading monitoring

project based on press reports (www.iraqbodycount.net), but far less than the millions estimated killed by all war-related causes in the DRC. However, the war in Iraq seems to have claimed a far higher percentage of its victims through violence, especially aerial strikes.

⁸ This figure is strongly influenced by the coding of the Vietnam War. In the Uppsala/PRIO data this conflict is an internal war from 1955–1964 and an interstate war from 1965–1975.

⁹ The authors of the IRC reports are quite explicit in emphasizing the criminal and/or one-sided character of most deaths through violence they investigated.

¹⁰ A detailed list of references to sources used in compiling the dataset (but not cited in this article) is found on www.prio.no/cscw/cross/battledeaths.

Appendix A: Definition of battle deaths

Our definition of *battle deaths* closely follows the definition of *conflict* used to create the Uppsala/PRIO Armed Conflict Dataset (Gleditsch et al., 2002; Harbom and Wallensteen, 2005). According to codebook for the Uppsala/PRIO dataset (Strand et al., 2003, pp. 3–4):

- “An *armed conflict* is a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths.”
- The separate elements of the definition are operationalised as follows:
- *Use of armed force*: use of arms in order to promote the parties’ general position in the conflict, resulting in deaths.
- *Arms*: any material means, e.g. manufactured weapons but also sticks, stones, fire, water, etc.
- *25 deaths*: a minimum of 25 battle-related deaths per year and per incompatibility.
- *Party*: a government of a state or any opposition organisation or alliance of opposition organisations.
- *Government*: the party controlling the capital of the state.
- *Opposition organisation*: any non-governmental group of people having announced a name for their group and using armed force.
- *State*: a state is an internationally recognised sovereign government controlling a specified territory, or an internationally unrecognised government controlling a specified territory whose sovereignty is not disputed by another internationally recognised sovereign government previously controlling the same territory.
- *Incompatibility concerning government and/or territory*: the incompatibility, as stated by the parties, must concern government and/or territory.
- *Incompatibility*: the stated generally incompatible positions.
- *Incompatibility concerning government*: incompatibility concerning type of political system, the replacement of the central government, or the change of its composition.
- *Incompatibility concerning territory*: incompatibility concerning the status of a territory, e.g. the change of the state in control of a certain territory (interstate conflict), secession, or autonomy (internal conflict).

The Lacina and Gleditsch dataset defines the following terms:

- *Battle deaths* are deaths resulting directly from violence inflicted through the use of armed force by a party to an armed conflict during contested combat.
- *Contested combat* is use of armed force by a party to an armed conflict against any person or target during which the perpetrator faces the immediate threat of lethal force being used by another party to the conflict against him/her and/or allied fighters. Contested combat excludes the sustained destruction of soldiers or civilians outside of the context of any reciprocal threat of lethal force (e.g. execution of prisoners of war).

- *Timeframe*: we have collected annual battle deaths data which includes both deaths during combat and deaths from wounds received in combat. Some of those considered dead of wounds may have died in a year following that in which combat actually took place, especially in the case of battles taking place late in the calendar year. These deaths were included, however, if they were the direct and immediate result of injuries sustained during combat violence. Long-term reduction in life expectancy because of wounds or disability was not included.

Appendix B: Regional definitions

- *Africa, Sub-Saharan*: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo (Brazzaville), Democratic Republic of Congo (Zaire), Côte d'Ivoire, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somalia, South Africa, Swaziland, Tanzania, Togo, Uganda, Zambia, Zanzibar, Zimbabwe.
- *Americas*: Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, United States of America, Uruguay, Venezuela.
- *Asia, Central and South*: Afghanistan, Armenia, Azerbaijan, Bangladesh, Bhutan, Georgia, India, Kazakhstan, Kyrgyzstan, Nepal, Pakistan, Sri Lanka, Tajikistan, Turkmenistan, Uzbekistan.
- *Asia, East and Southeast and Oceania*: Australia, Brunei, Cambodia, China, East Timor, Fiji, Indonesia, Japan, People's Republic of Korea (North Korea), Republic of Korea (South Korea), Laos, Malaysia, Maldives, Mongolia, Myanmar (Burma), New Zealand, Papua New Guinea, Philippines, Singapore, Solomon Islands, Taiwan, Thailand, Democratic Republic of Vietnam (North Vietnam), Republic of Vietnam (South Vietnam).
- *Europe*: Albania, Austria, Belarus, Belgium, Bosnia Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Czechoslovakia, Denmark, Estonia, Finland, France, German Democratic Republic (East Germany), German Federal Republic (West Germany), Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Netherlands, Norway, Poland, Portugal, Rumania, Russia (Soviet Union), Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom, Yugoslavia (Serbia and Montenegro).
- *Middle East and North Africa*: Algeria, Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, Turkey, United Arab Emirates, Yemen (Arab Republic), Yemen (People's Republic).

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