

Undercounting, overcounting and the longevity of flawed estimates: statistics on sexual violence in conflict

Tia Palermo^a & Amber Peterman^b

Sexual violence has been associated with several recent conflicts and their aftermath, including – but not limited to – conflicts in Bosnia (1992–1995), Colombia (1964–present), the Democratic Republic of the Congo (DRC) (1996–present), East Timor (1976–1999), Liberia (1989–1996, 1999–2003), and Rwanda (1994). Recent efforts by the international community have sought to address wartime sexual violence. In March 2007, the United Nations Action Against Sexual Violence in Conflict body was launched to coordinate efforts across 13 United Nations entities and increase efforts to end sexual violence during and in the wake of armed conflict. In January 2010, United Nations Secretary-General, Ban Ki-moon, appointed Margot Wallström as his Special Representative on sexual violence in conflict. Further, in December 2010, the United Nations Security Council adopted Resolution 1960, which called for commitments to “enhance data collection and analysis of incidents, trends and patterns of rape and other forms of sexual violence” to improve targeting and policy response.¹

These coordinated efforts to influence policy and the call for rigorous research including enhanced data collection on wartime sexual violence are long overdue. Although standard reporting and data collection efforts of any kind are compromised in situations of civil unrest, our understanding of sexual violence dynamics is particularly poor. Despite this acknowledgement, flawed estimates are often perpetuated by well intentioned actors because of the desire to provide numbers to illustrate the magnitude of violence. Citation of secondary sources with little understanding or explanation of methodology and limitations of the estimate is rampant.

Sources of bias and limitations specific to research on wartime sexual violence are numerous but can be broadly categorized into macro-level (or institutional) and micro-level (or individual) constraints. Among the macro-level constraints, as previously mentioned, are logistical barriers to collecting large-scale nationally-representative surveys and the break-down of routine report-

ing systems during conflict. As a result, the majority of available databases of estimates from conflict areas come from reports to law enforcement authorities or record reviews at health facilities. Estimates from these sources are typically lower than the true prevalence of sexual violence because they capture only cases that were reported or where medical attention was sought, which are often only a fraction of the true incidence.

Perhaps less recognized, another institutional constraint is in the supply of rigorous research. Until recently, sexual violence was often sidelined as a “feminist” research agenda, and many studies were small in scale or qualitative descriptions and therefore not generalizable. Rigorous, high quality, micro-level data, including panel data is rarely available, as sexual violence information is notoriously hard to collect due to myriad micro-level constraints. Sexual violence in household surveys is often underreported due to stigma, shame and fear of disclosure to partners and families. Researchers seeking to collect violence data must be committed to additional training of field staff on sensitivity of interview administration, ethics reviews and referral procedures. Further, household surveys cannot capture individuals who have been displaced or who died as a result of their attacks. Data is typically collected exclusively among adult women, despite evidence that suggests that men, boys and girls are victimized at nontrivial rates. However, underreporting is not the only problem; individuals in conflict areas may over-report rape if they believe rape victims receive special attention such as medical assistance or humanitarian relief.² There is also a possibility of reporting bias for sexual violence – victims may be more likely to report public, violent rapes or those where victims are clearly innocent (e.g. young children) and thus less likely to be shunned.

Because the research community has not invested in addressing these limitations, many of the current best estimates are flawed, and tenuous estimates are often widely cited as fact. Although the improvement and refinement of data and

methodology are ongoing targets in any research field, the lack of acknowledgement of these limitations, particularly by human rights advocacy groups, policy institutions and journalists, is particularly apparent. We turn now to a discussion of several commonly cited estimates for sexual violence in recent prominent conflicts and discuss methodology surrounding their origin. We conclude with a discussion of steps to improve accountability, research methodology and policy change.

The most commonly cited estimate for rape during the Bosnian war is approximately 20 000 cases, which comes from a 1993 European Commission report detailing a fact-finding mission to investigate the treatment of Muslim women during the conflict and to determine whether rape could be described as “systematic”. Since the only description of methodology references interviews with knowledgeable persons or key informants,³ it is unlikely that an actual survey was conducted (representative or not). Further, the estimates were produced in 1992, and the conflict continued for another three years, rendering the validity of this “best approximation” flawed.

It has been repeatedly claimed by the media that more than three quarters (75%) of Liberian women were raped during the country’s civil war, despite the evidence from peer-reviewed studies which have estimated the prevalence of rape to have been between 9.2% and 15%.^{4,5} The three-quarters estimate originates from a study conducted on a sample of survivors of different types of sexual violence, of whom 77% had experienced rape (DK Cohen & AH Green, unpublished data, 2011). This estimate has been taken out of context and cited as if it were generalizable to all women in Liberia. This is an example of how statistics on sexual violence can be misrepresented when methodology behind the research, or arguably the report itself, is not understood by those citing the estimates.

Estimates of rape during the 1994 Rwandan genocide range from 250 000 to 500 000 individuals. Calculated by the United Nations Special Rapporteur on

^a Stony Brook University, Health Sciences Center Level 3, Stony Brook, NY, 11794, United States of America (USA).

^b International Food Policy Research Institute, Washington, USA.

Correspondence to Tia Palermo (e-mail: tia.palermo@stonybrook.edu).

(Submitted: 3 May 2011 – Revised version received: 25 July 2011 – Accepted: 26 July 2011)

Rwanda in a 1996 report, these estimates were extrapolated from the number of recorded pregnancies resulting from rape (approximately 2000–5000). It was estimated that one pregnancy would result from every 100 rapes,⁶ which is a low estimate since the medical literature suggests that a single act of unprotected intercourse will result in a pregnancy in 2–4% of cases.^{7,8} Furthermore, only women reporting rape and subsequent pregnancy were included in the base number of cases on which extrapolations were made. This method is highly biased because all rapes ending in pregnancy are not reported, victims who are pre-menarche or post-menopause are not captured, and sexual violence perpetrated against men is also not captured. These estimates likely represent a gross lower bound, but it is hard to infer the magnitude of underestimation.

The Democratic Republic of the Congo has been called the “rape capital of the world”. Media and advocacy coverage often state that “tens of thousands” of women have been raped during the conflict spanning more than a decade from the mid-1990s. More than 15 000 rapes were reported each year to the United Nations mission in the DRC in both 2008 and 2009,⁹ and this number has commonly been used to infer a magnitude of sexual violence in the country. The major limitation of this figure is that it is based only on cases reported to the United Nations mission. In contrast, a recent study using population estimates and data from the nationally representative Demographic and Health Survey (DHS) conducted from 2006–2007 showed that the rate of rape among women aged 15 to 49 years in a 12-month period was 26 times higher than the estimates based on reports to United Nations authorities.¹⁰ Although these recently published estimates are still most likely to

be lower than reality due to age and sex limitations of respondents, the contrast to the number of cases reported to authorities shows the order of magnitude of differences which plague commonly cited estimates.

This brief exercise has shown that there is a lack of accountability and rigour surrounding citation of estimates of sexual violence during conflict. This perpetuation of flawed estimates is damaging in several ways. Lower bound estimates may belittle the extent of the problem and fail to induce the international community to act. Alternatively, if estimates from current conflicts are exaggerated, future scenarios might seem less severe in comparison, and therefore international organizations and governments may be less inclined to act or to allocate resources inefficiently. On the one hand, the argument can be made that improved estimates should not necessarily be the focus of research on conflict-related violence and instead we should focus on understanding the dynamics and prevention of sexual violence. On the other hand, although it is true that funding and mobilization is often based on estimates derived from the “tip of the iceberg” approach in complex emergencies, it is also easy to see that a lack of understanding of the magnitude or the characteristics of people affected can quickly lead to flawed conclusions and implications for prevention.

Although international donor organizations and research institutes have become more engaged in research on sexual violence over the past decade, there is a need for higher standards and more funding. As a start, sexual violence modules should be included in existing large-scale population-based surveys such as the DHS during or immediately after conflict. Although a leading source of data on sexual

violence, not all DHSs include questions on violence against women and, while surveys are implemented regularly at 4–5 year intervals in many developing countries, they often do not coincide with dates of civil unrest. Furthermore, it is difficult to make comparisons between countries regarding the severity of sexual violence because the modules are not implemented consistently between countries, using different definitions of sexual violence, reporting periods and targeted samples. However, population-based surveys in select countries experiencing conflict have been implemented. Analysis of this data helps shed light on dynamics, although findings are often limited in geographic scope or generalizability. Furthermore, panel data must be collected to assess trends in violence and to enable researchers to conduct more sophisticated analyses. Programme evaluations (especially randomized control trials) must be undertaken to better inform policies and design of preventative and curative interventions. Both quantitative and qualitative studies should be used, and no one study should ever be viewed as the definitive answer on a policy solution or as the true estimate of sexual violence in a population. Rigorous research on sexual violence in conflict is needed: we call on donors to provide funding and incentives to conduct this type of research, and on researchers to focus efforts on producing high quality analysis to address research gaps. Finally, we call on the international community for accountability when citing estimates so as not to hyperbolize an already grave situation or lessen the apparent severity and need for action in future instances of sexual violence in conflict. ■

Competing interests: None declared.

References

1. Resolution 1960 (2010). In: *6453rd Meeting of the United Nations Security Council, New York, 16 December 2010*. Available from: <http://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/WP%20SRES%201960.pdf> [accessed 27 September 2011].
2. Utas M. Victimcy, girlfriending, soldiering: tactic agency in a young woman's social navigation of the Liberian war zone. *Anthropol Q* 2005;78:403–30. doi:10.1353/anq.2005.0032
3. Nikolic-Ristanovic V. Living without democracy and peace: violence against women in the Former Yugoslavia. *Violence Against Women* 1999;5:63–80. doi:10.1177/10778019922181158
4. Johnson K, Asher J, Rosborough S, Raja A, Panjabi R, Beadling C et al. Association of combatant status and sexual violence with health and mental health outcomes in postconflict Liberia. *JAMA* 2008;300:676–90. doi:10.1001/jama.300.6.676 PMID:18698066
5. Swiss S, Jennings JP, Aryee GV, Brown GH, Jappah-Samukai RM, Kamara MS, Schaack RDH, Turay-Kanneh RS. Violence against women during the Liberian civil conflict. *JAMA* 1998;279:625–9. doi:10.1001/jama.279.8.625 PMID:9486762
6. *Shattered lives: sexual violence during the Rwandan genocide and its aftermath*. New York: Human Rights Watch;1996.
7. Tietze C. Probability of pregnancy resulting from a single unprotected coitus. *Fertil Steril* 1960;1:485–8.
8. Wilcox AJ, Dunson DB, Weinberg CR, Trussell J, Baird DD. Likelihood of conception with a single act of intercourse: providing benchmark rates for assessment of post-coital contraceptive. *Contraception* 2001;63:211–5. doi:10.1016/S0010-7824(01)00191-3 PMID:11376648
9. *Report of the Secretary-General on the implementation of Security Council resolutions 1820 (2008) and 1888 (2009)*. New York: United Nations General Assembly Security Council; 2010. Available from: <http://www.securitycouncilreport.org> [accessed 27 September 2011].
10. Peterman A, Palermo T, Bredenkamp C. Estimates and determinants of sexual violence in the Democratic Republic of Congo. *Am J Public Health* 2011;101:1060–7. doi:10.2105/AJPH.2010.300070 PMID:21566049