Conflict and health

The health costs of war: can they be measured? Lessons from El Salvador

Antonio Ugalde, Ernesto Selva-Sutter, Carolina Castillo, Carolina Paz, Sergio Cañas

Studies assessing the health impact of armed conflicts have documented the disruption of referrals, immunisation programmes, supplies, and monitoring and surveillance and increased dependence on foreign personnel and funding,[1 2] but measurements have typically focused on deaths, disabilities, infant mortality, and communicable diseases, and occasionally on facilities destroyed.[2–4] The case of El Salvador shows that, useful as this quantitative information is, it is insufficient to assess the effects of war on health and to provide guidelines for rehabilitation of health services. Specifically, there are three key areas of underassessment in evaluating the health costs of war: psychosocial behaviours, environmental destruction, and disruption to policy making.

Summary points

Traditional indicators (infant mortality, maternal mortality, malnutrition, rates of communicable diseases) are insufficient to measure the impact of war: selective primary care improves these indicators even when the general health status of the population deteriorates

Policy making is affected during periods of political violence: by conflicting approaches by different agencies, by parallel health systems organised during the war, and by conflicts between international funding agencies and national policy makers; the impact of war on policy making has not been adequately assessed

Agencies focusing on post-conflict rehabilitation tend to overlook effects of war that are less visible and more difficult to assess

This is the second of four articles

Department of Sociology, University of Texas, Austin, TX 78712-1088, USA
Antonio Ugalde *professor*

Department of Public Health, Universidad Centroamericana José Siméon Cañas, San Salvador, El Salvador
Ernesto Selva-Sutter *director*
Carolina Castillo *professor*
Carolina Paz *professor*
Sergio Cañas *professor*

Correspondence to: A Ugalde augalde@mail.la.utexas.edu

Series editor: Anthony B Zwi (Anthony.Zwi@lshtm.ac.uk)

BMJ 2000;321:169–72

Background

The 1980-92 civil war in El Salvador was the culmination of decades of militarisation, intense political violence, and repression which produced thousands of victims.[5–7] Violations of international codes of war conduct, mostly by the government's armed forces, routinely took place during the war. Horrifying descriptions of massacres of children, women, and elderly people; killings of wounded and sick in hospital wards; assassinations of civilians; and executions of prisoners have been reported by survivors. Estimates of war related casualties and physical disabilities have been placed at around 80 000 and 14 000-19 000 respectively. The estimates of displaced population are probably more unreliable and vary widely, from 1.5 million to 2 million people out of a total population of 5.2 million in 1985.[8–10] In spite of massive economic aid during the war, the economy deteriorated from a gross national product of 727 colones per capita in 1980 to 665 in 1992 (1960 values for colones: US$1 = 2.5 colones).[11]

Given the brutality and duration of the war, the large number of people affected, and the deterioration of the economy, it could be expected that the health impact of the war would have been severe, but an examination of commonly used health indicators suggests the contrary. Only one local hospital severely damaged by the war and 22 health centres in combat zones were abandoned and ransacked by the population. As the table shows, infant mortality continued to decline during the war years; life expectancy at birth increased; acute malnutrition for the years for which there is reliable information decreased, as did maternal mortality and mortality from vaccine preventable diseases (tetanus, smallpox, measles, diphtheria, and polio) and malaria.[12]

These improvements probably reflect, in part, interventions that took place during the war, such as food assistance from the World Food Program and the US Agency of International Development (USAID),[13] truces by the armed forces and the insurgency to permit immunisation campaigns, use of oral rehydration solution, and wider use of birth control.[12] All these factors are components of selective primary health care and were financed and logistically supported by international agencies.

With international financing, El Salvador rapidly demined the war zone; by 1994 no injuries related to mines were reported.[14] International grants and loans, and the continuous flow of funds (about $1bn per year) from Salvadorans who had taken refuge in the United States, stimulated economic growth—which benefited primarily the wealthy—soon after the signing of the peace agreement.

In view of the above information, some could be inclined to suggest that the health impact of war in El Salvador was limited to casualties, disabilities, destruction of some health facilities, and temporary organisational dysfunctions with no lasting consequences; we dispute this seemingly reasonable interpretation below.

Quality and availability of services

The quality and availability of public medical care in El Salvador deteriorated during the war.[15] The degree of deterioration in public services cannot be measured easily, but several indicators are illustrative. The health budget itself was drastically reduced during the war by almost 50%; both users and providers indicate that the war negatively affected the quality of care. An indication of the deterioration is that neonatal mortality rose from 20/1000 during 1983-8 to 23/1000 during 1988-93 at the same time that infant

Commonly used quantitative measures of health consequences of wars. Characteristics of El Salvador civil war 1982-1992, and summary indicators

Measure	During war		After war	
	Year	Value	Year	Value
Commonly used measures				
Acute malnutrition weight for height (%)	1988	3.1	1992	2.1
Total fertility rate (women aged14-44)	1983-8	4.17	1993	3.9
Maternal mortality per thousand births	1980	70.6	1992	37.7
Life expectancy at birth (years)	1980	56.9	1992	66.4
Infant mortality (per 1000 live births)	1983-8	52	1988-93	41
Levels of immunisation (% of children under 5):				
BCG*	1988	77.3	1993	87.4
Diphtheria, pertussis, and tetanus†	1988	61.4	1993	82.0
Measles*‡	1988	81.0	1993	86.3
Polio†	1988	61.5	1993	83.2
Other measures				
Contraceptive use (%)§	1978	34.4	1993	53.3
Neonatal mortality (per 1000 live births)	1983-8	20	1988-93	23

*Complete immunisation with one dose.
†Excludes children 0-5 months of age. Complete immunisation with three doses.
‡Excludes children 0-8 months of age.
§% of women aged 15-55 in marital union.

mortality declined considerably.[12] The precise impact of the deterioration of quality of care and reduction of services on health status is difficult to establish.

Mental health and violent behaviour

Several studies have assessed the impact of war in communities in El Salvador and exiled groups,[16-18] but a national study of mental health conditions after the war has not been carried out, nor was there a prewar survey with which such data could be compared. A few internationally funded mental health programmes were organised to care for people with mental health problems caused by physical disabilities due to the war, but their scope was limited.[19]

Given the lacunae in mental health, we commissioned a study in three towns, one of which had been heavily exposed to warfare, the second with limited exposure, and the third with none. The study found that psychosocial distress was widespread. The intensity and number of problems was highest in the community that had been most heavily exposed to the war, but members of the community that had not been directly exposed to warfare also manifested high levels of mental health problems related to war. Members of this community, including some priests, had been assassinated by death squads, and many residents had relatives and friends who went into exile or had been displaced, killed, or tortured or had disappeared. Three years after the conclusion of the war in the three towns many people had anxiety, depression, sleep disturbances, suicidal tendencies, trembling, dizziness, fears, and flashbacks, as well as somatic symptoms resulting from stress and emotional conditions such as migraines, nausea, headaches, back pain, and stomach problems.

A recent comprehensive multimillion dollar assessment of the health sector of El Salvador identified other health consequences of war: household and street violence, alcoholism, and drug addiction.[20] In 1996 El Salvador had one of the highest rates of homicide in the world (17 per 100 000); data on other types of violence, alcoholism, and drug addiction are not available. Assessing how important the conflict was in contributing to these social problems is difficult, especially as there are no data from before the conflict.

Environmental degradation

Social phenomena related to the conflict contributed to the degradation of the environment.[21] Thousands of peasants sought refuge from violence in the cities. With rapid urban growth, municipalities were unable to provide basic health services such as water, sanitation, and sewerage removal for the majority. Water supply was frequently discontinued, and in 1995 the municipality of San Salvador was collecting only 36% of the 517 tons of garbage generated daily; the rest was abandoned in the streets, ravines, and other public spaces.[21] The collected garbage is disposed of in municipal dumps which, according to environmentalists, are contaminating aquifers, rivers, lakes, and water reservoirs which supply water for human consumption.

Untreated disposal of sewerage is another health hazard. About 40% of urban households are not connected to sewerage systems.[22] According to Salvadoran environmentalists, these conditions increase the presence of pathogenic micro-organisms, vectors, rodents, molluscs, and algae that continue to constitute health hazards.[21] Because many of the diseases caused by such agents are self treated or cared for by the private sector and not reported in the official morbidity statistics, morbidity related to conflict is under recognised.

The war was responsible for a shift in the budget appropriations from civilian to military programmes. During the 1970s El Salvador had developed a strong institutional environmental capability—its General Direction of Natural Resources implemented some of the most sophisticated environmental projects in Central America. Its budget was drastically cut during the war: by 1988 it received only 16% of its 1978 allocation, and by 1993 the professional staff had been reduced from 43 to 10, preventing it from carrying out effective environmental programmes[21] and indirectly contributing to morbidity.

Impact on the health policy process

There are very few studies of the impact of war on the health policy process.[23 24] The study of El Salvador provides some glimpses of the aftereffects of the conflict on policy formation; here we discuss the impact on a single dimension of one primary care policy. During the conflict, the insurgency, assisted by foreign volunteers and funding, had developed a remarkable primary health system to provide services to the areas under its control.[25] Hundreds of health promoters were trained and provided sophisticated first aid to injured people and primary care to the residents. After the signing of the peace treaty most of these health promoters continued to work in the same communities with the logistic support of non-governmental organisations (NGOs) and international funding, covering as much as one third of the national territory.

The ministry of health was unhappy about the lack of control over these privately operated services, arguing appropriately that the numerous NGOs (around 60) posed a problem of coordination. As private organisations, each NGO defined its own priorities and programmes. Some allowed health promoters to dispense a variety of drugs, others provided a limited

number of services, and none was obliged to cooperate with the ministry's programmes and national campaigns.

On the other hand, privately operated health centres complemented the privatisation of the health sector advocated by neo-liberal policies of some international agencies which the conservative government of El Salvador had officially accepted. USAID mission administrators were aware that aid funding was to be severely reduced as the country returned to peaceful conditions and were pressing the ministry of health to contract with the NGOs as part of the privatisation scheme. Such contracts would assure that relatively large parts of the country would continue to receive some basic health care in the future. We were told by an NGO officer that many NGOs did not oppose the signing of contracts with the ministry, and health promoters were even anxious to be transferred to the ministry's payroll because of the understanding that foreign funding would be much less plentiful in the future. The minister of health, a member of the conservative party that had won the 1994 elections, was adamantly opposed to signing contracts with NGOs and to the employment of their health promoters. He argued, an officer of an assistance agency told us, that some NGOs and promoters were communists and allies of the former insurgents, now in the opposition party. USAID and the NGOs correctly believed that the ministry did not have the infrastructure and personnel to provide services to the villages formerly under the control of the insurgency, and that if the NGOs were to discontinue their programmes the populations in those areas would suffer.

Given the dependence of the government on USAID and other international agencies, the minister could not openly oppose the advice to negotiate with the NGOs working in territories formerly occupied by the FMLN (guerilla front), but because of his political ideology he was not willing to work with them. The result was no action and a decision making paralysis. This had the effect, perhaps intended, of many health promoters leaving the health sector in search of employment offering greater job security.

Lack of agreement on priorities among foreign funding agencies that were assisting and funding the health ministry's rehabilitation efforts added confusion and further slowed decision making and postconflict rehabilitation of health services. The World Bank and the Inter-American Bank for Development favoured the rehabilitation of hospitals simply because they had more experience with the administration of hospital loans. During discussions with the ministry of health, the bank representatives argued that primary health care was wasteful and not cost efficient. USAID considered hospital rehabilitation a low priority and was supporting the idea of a universal and minimal "selective primary care" package.

Impacts and consequences

Some effects of the war can be assessed, such as the number of deaths, people disabled by war, and facilities destroyed. National surveys are costly but can measure levels of malnutrition, physical health of the population, and mental health. If a country has prewar health statistics tentative conclusions regarding the impact of the war can be drawn. Because of the range of social and economic changes that occur during, but not necessarily as a result of, the conflict, the information from postwar health surveys cannot conclusively assess the health impact of the war. Wars often have serious economic consequences for affected countries, with negative implications for health. But economies are also affected by other factors, such as natural conditions (droughts, hurricanes, earthquakes), global economics, foreign aid, and money sent from abroad. Economic analyses, especially in underresourced settings, may be insufficiently sensitive to separate out the effects of each factor. The health impact produced by related changes such as forced migration, social problems (increase of violent behaviour, alcoholism, and drug abuse), and degradation of the environment are extremely difficult if not impossible to measure. The absence of baseline data makes it very difficult to determine the impact of the war. At the same time, as this study of El Salvador shows, selective primary care programmes can improve, at very low cost, a few basic health indicators such as infant and maternal mortality, malnutrition, and life expectancy, and this can obscure the negative consequences.

DOUGLAS ENGLE/AP PHOTO

Veteran of the El Salvador war being fitted for a prosthesis at the PODES clinic, where the majority of workers are also prosthesis users

Similarly, the impact of war on policy formation and the operational capabilities of the health sector are difficult to establish. In El Salvador, policy making capacity, health workers' morale, and mechanisms for resolving conflict seem to have been negatively affected by the conflict and its aftermath. Finally, it is impossible to establish how much additional human suffering has been produced by the war because of the loss of access to services and the deterioration in quality of care.

Difficulties in measuring the impact of war have consequences. Firstly, there may a tendency to disregard the consequences that are more difficult or impossible to measure, thus hiding the full consequences. Secondly, system rehabilitation programmes tend to focus on improving the indicators that are most easy to quantify such as infant mortality, and on highly visible interventions, such as the rebuilding of physical infrastructure. This study suggests that less visible and less measurable effects of war tend to be overlooked by rehabilitation programmes. Years after the conclusion of the conflict, war related psychosocial problems remained largely unattended.

Less visible and measurable health effects of war

- Traditional indicators (infant mortality, maternal mortality, malnutrition, rates of communicable diseases) are insufficient to measure the impact of war: selective primary care improves these indicators even when the general health status of the population deteriorates
- Psychosocial conditions worsen during conflict; little attention is paid by rehabilitation programmes to establish the need for and develop appropriate community based responses to these problems
- Quality and availability of public health care tends to deteriorate during conflicts owing to budgetary restrictions, paralysis of decision making, and low morale
- Measuring suffering and morbidity is difficult; changes in trends cannot be established without prewar information
- Social problems such as drug misuse, alcoholism, and violence may increase during and after the conflict
- The environmental impact of war is severe, but the health consequences of such degradation are difficult to quantify

International assistance agencies can easily overlook hidden problems such as suffering caused by the deterioration of health services, less visible problems such as increases in substance abuse and violence, conditions more complex to measure such as environmental degradation, and those associated with declining quality of public sector service provision and decision making. These, however, require identification and action if health for the people is to be promoted after years of suffering.

Funding: This research was funded by a grant from the European Union contract No TS3*-CT94-0305 (DG 12 HSMU). The field work for the mental health component was carried out by Margaret Oakes and funded by a research grant of the Institute of Latin American Studies of the University of Texas at Austin.

Competing interests: None declared.

1 Levy BS, Sidel VW, eds. *War and public health*. Oxford: Oxford University Press, 1997.
2 Zwi A, Ugalde A. Political violence in the third world: a public health issue. *Health Pol Plann* 1991;6:203-17.
3 Garfield RM. War-related changes in health and health services in Nicaragua. *Soc Sci Med* 1989;28:669-76.
4 Godfrey N, Kalache A. Health needs of older adults displaced to Sudan by war and famine: questioning current targeting practices in health relief. *Soc Sci Med* 1989;28:707-14.
5 Betancur B, Figueredo Planchart R, Buergenthal T. *From madness to hope: the twelve-year war in El Salvador. Report of the Commission on the Truth for El Salvador*. New York: United Nations, 1993.
6 Montgomery TS. *Revolution in El Salvador. From civil strife to civil peace*. Boulder, CO: Westview, 1995.
7 Cagan B, Cagan S. *This promised land: El Salvador. The refugee community of Colomcagua and their return to Morazan*. New Brunswick, NJ: Rutger University Press, 1991.
8 Montes Mozo S, Garcia Vazquez JJ. *Salvadoran migration to the United States: an exploratory study*. Washington, DC: Hemispheric Migration Project and Refugee Assistance, Georgetown University, 1988.
9 Morel A. *Refugiados salvadorenos en Nicaragua*. Managua: ACRES, 1991.
10 Schrading R. *Exodo en America Latina. El movimiento de poblacion en El Salvador*. San Jose, Costa Rica: Instituto Centroamericano de Derechos Humanos, 1991.
11 Ivett Sanchez S. Ayuda externa y mas pobreza en El Salvador. *Realidad* 1995;47:747-94.
12 FESAL-93. *National health survey*. San Salvador: USAID, 1994.
13 Garst R, Barry T. Feeding the crisis. US food aid and farm policy in Central America. Lincoln, NB: University of Nebraska Press, 1990.
14 Unicef. *Clearing the minefields: a step towards peace*. San Salvador: Unicef, 1995.
15 Barry T. *El Salvador. A country guide*. Albuquerque: Inter-Hemispheric Education Resource Center, 1991.
16 Sisti E. *Salud mental de base*. San Salvador: Universidad Centroamericana José Simeon Canas UCA, 1995.
17 Lundgren RI, Lang R. "There is no sea, only fish": effects of United States policy on the health of the displaced in El Salvador. *Soc Sci Med* 1989;28:697-706.
18 Cervantes R, Salgado de Snyder VN, Padilla MA. Post-traumatic stress in immigrants from Central America and Mexico. *Hosp Communitty Psychiatry* 1989;40:615-9.
19 Programa de las Naciones Unidas para el Desarrollo. *La hora de la paz. Desarrollo humano y salud mental. Experiencias en centroamérica*. San Salvador: PNUD, 1994.
20 Ayalde J. *Perfil epidemiologico. Analisis del sector salud*. San Salvador: USAID, 1994.
21 PRISMA. *El Salvador: dinamica de la degradacion ambiental*. San Salvador: PRISMA, 1995.
22 Arguello R. Medio ambiente y salud. Analisis del sector salud. San Salvador: USAID, 1994.
23 Macrae J, Zwi A, Gilson L. A triple burden for health sector reform: "post"-conflict rehabilitation in Uganda. *Soc Sci Med* 1996;42:1095-108.
24 Ityavyar DA, Ogba LO. Violence, conflict and health in Africa. *Soc Sci Med* 1989;28:649-58.
25 Lara T, Garcia Ramirios C, de Calderon SE. *Rescate de la autogestion comunitaria en la solucion de sus problemas de salud en las zonas conflictivas (1981-1991). San Salvador: DANIDA, 1994.*

A memorable patient

Words unsaid

In hospital medicine, as in general practice, trust between patient and doctor builds up over the years. Sometimes very little occurs during the consultation apart from reassurance that all is well and yet both the doctor and patient are satisfied at the outcome.

My particular patient had a carcinoma of her lower lip treated by radiotherapy four years before my appointment in Birmingham 13 years ago. This left the skin very thin and subject to repeated superficial breakdowns. From time to time I would biopsy an area when it had failed to heal for three or more months, and each time she was free from recurrence. Since she was retired, she visited with her husband and I also came to know him as well.

During one of her admissions for a biopsy, we diagnosed her hypertension in the last year of her life. It may be a coincidence, but when she was treated for her blood pressure, her lip healed up. Their last visit was just before Christmas when she came to tell me that her lip had healed nine months previously. She had struggled from the car park, which is a considerable distance from the hospital, to the clinic on the top of the hospital.

I asked her why she had come since she was obviously unwell. She was deeply jaundiced at the time and was short of breath owing to ascites secondary to her inoperable metastatic carcinoma. She told me that she had cancelled the previous appointment because she was in hospital undergoing investigation, but she had wanted to come and see and thank me for all the care and attention that I had given her over the years. What remained unsaid was that she knew that she was dying and we both understood that she wanted to say goodbye.

Adrian Drake-Lee *consultant ear, nose, and throat surgeon, Birmingham*

We welcome articles of up to 600 words on topics such as *A memorable patient, A paper that changed my practice, My most unfortunate mistake*, or any other piece conveying instruction, pathos, or humour. If possible the article should be supplied on a disk. Permission is needed from the patient or a relative if an identifiable patient is referred to. We also welcome contributions for "Endpieces," consisting of quotations of up to 80 words (but most are considerably shorter) from any source, ancient or modern, which have appealed to the reader.