A public health framework to translate risk factors related to political violence and war into multi-level preventive interventions

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ABSTRACT

Political violence, armed conflicts and human rights violations are produced by a variety of political, economic and socio-cultural factors. Conflicts can be analyzed with an interdisciplinary approach to obtain a global understanding of the relative contribution of risk and protective factors. A public health framework was designed to address these risk factors and protective factors. The framework resulted in a matrix that combined primary, secondary and tertiary interventions with their implementation on the levels of the society-at-large, the community, and the family and individual. Subsequently, the risk and protective factors were translated into multi-sectoral, multi-modal and multi-level preventive interventions involving the economy, governance, diplomacy, the military, human rights, agriculture, health, and education. Then the interventions were slotted in their appropriate place in the matrix.

The interventions can be applied in an integrative form by international agencies, governments and non-governmental organizations, and molded to meet the requirements of the historic, political-economic and socio-cultural context. The framework maps the complementary fit among the different actors while engaging themselves in preventive, rehabilitative and reconstructive interventions. The framework shows how the economic, diplomatic, political, criminal justice, human rights, military, health and rural development sectors can collaborate to promote peace or prevent the aggravation or continuation of violence. A deeper understanding of the association between risk and protective factors and the developmental pathways of generic, country-specific and culture-specific factors leading to political violence is needed.

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Introduction

Population growth, technological advancement, economic interdependence and ecological vulnerability, combined with the availability of weapons and the contagion of hatred and incitement to violence, make the task of finding ways to prevent disputes from turning massively violent quite an urgent one. Armed conflicts have significantly damaged social, physical and human capital in conflict-related countries and hampered their economic development during and after the conflict (Stewart, Cindy, & Michael, 2001). In the post-Cold War era, wars within states vastly outnumber wars between states. These internal conflicts are commonly fought with conventional weapons and rely on ethnic expulsion or annihilation. The cumulative effect of multiple risk factors, a lack of protective factors, and the interplay of risk and protective situations predispose countries to move from a stable condition to one of increased vulnerability, then to political violence and finally to full-blown civil conflict or war. Preventive strategies from the realm of public health can restore the balance between risk and protective factors. Prevention rests on a few generic public health principles where the word "disease" can be substituted by the word "violence": uncovering knowledge about violence and reacting early to signs of trouble; using a comprehensive approach to alleviate risk factors that trigger or maintain violent conflict; addressing the underlying root causes of violence; and implementing, monitoring, and evaluating interventions that appear promising (Carnegie Commission, 1997). Paraphrasing Sackett, Rosenberg, Gray, Haynes, and Richardson (1996, p. 71) definition, evidence-based prevention of collective violence is the "conscientious and judicious use of current best evidence in making decisions about preventive interventions for communities, countries and regions to reduce the incidence of political and economic violence and to enable people to regain control, to improve their well-being, and live in peaceful coexistence".

The World Health Organization divides violence into three broad categories according to characteristics of those committing

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the violent act: self-directed violence, interpersonal violence and collective violence. Collective violence is subdivided into social, political and economic violence. Political violence includes war and violent conflicts, state violence, terrorist acts, and mob violence. Economic violence includes attacks by larger groups motivated by economic gain (WHO, 2002). This paper will address political violence and its consequences. Different types of violence are strongly interrelated and can best be understood within an ecological or contextual paradigm.

In 2000, an estimated 1.6 million people worldwide died as a result of violence. Nearly half of these deaths were suicides, one-third were homicides, and one-fifth were war related (WHO, 2002). Estimates of Disability Adjusted Life Years (DALYs) due to war injuries will increase between 2009 and 2019 (Murray & Lopez, 1997). In modern warfare, 10% of the people who are killed are soldiers and 90% civilians – one-half of which are children. Armed conflict is often associated with reduced agricultural production and forced displacement of people. This contributes to increasing poverty, hunger and malnutrition (Farmer, 2003; Kleinman, Das, & Lock, 1997). A local conflict can develop into national conflicts, which sometimes spill over into neighboring countries and thus may destabilize an entire region (Murdock & Sandler, 2002; Pinstrup-Andersen & Shimokawa, 2008).

The ratio of involvement in collective violence of low-to middle-income countries versus high-income countries is ten to one (WHO, 2002).

At the global level, the total number of armed conflicts rose steadily from the early 1950s through 1994 and then declined sharply until 2004. The end of the Cold War at least partially influenced the decline in armed conflict. The decline was largely due to the resolution of old conflicts rather than the prevention of new conflict, and many dormant societal conflicts re-emerged after 2004 (Hewitt, 2008).

Political violence often follows steps along a continuum of antagonism (Staub, 1993). A progression of mutual retaliation may start with small acts that escalate, resulting in a malignant social process (Deutsch, 1983). The escalation of conflict is often the result of 'us'-'them' differentiation and groupthink. Groupthink creates an illusion of invulnerability that leads to excessive optimism and risk taking, a collective rationalizing of warnings that might temper a position, an unquestioned belief in a group's moral superiority, negative stereotypes of an out-group making negotiation unfeasible, direct pressure on dissenters from group ideology, self-censorship of deviation from an apparent consensus, a shared illusion of unanimity, and the emergence of self-appointed 'mind guards' to protect groups from adverse information so that dissent to violence is voiced at risk of death (Janis, 1982). Examples of 'us'-'them' conflicts are the antagonisms that exist between Aryan–Jew, Tutsi–Hutu, Israeli–Palestinian, Indian–Pakistani, Arab–'West', Han Chinese versus others, Serbs–Bosnians. If the societal self-concept is based on superiority, self-doubt or their combination, it may give rise to war-generating motives (e.g., Germany after WWI, the Khmer Rouge dream of restoring the old Khmer empire). A societal self-concept often designates disputed territories as part of a nation (China claiming Tibet, Israelis and Palestinians claiming Jerusalem, Iraq claiming Kuwait, or Argentina reclaiming the Falklands); or part of the territory may want to split off from a country to which it 'belongs' (Biafra from Nigeria, East from West Pakistan, Eritrea from Ethiopia, South-Sudan from the North, Kurdistan from Turkey, Iran, Iraq, and Syria). Groups, like individuals, project unacceptable aspects onto others; those who are repudiated become 'bad', whereas the opposition remains pure and good (Staub, 1993) (e.g., the genocide of the Armenians in Turkey; the tensions in South Africa or Congo leading to witchcraft accusations; the accusations of 'parasitism' to the Jews in pre-WWII Europe, to Indians in East

Africa, or the Chinese in Indonesia; Mozambique's Renamo claiming to restore traditional values that were felt to be derogated by Frelimo).

The probability of the onset of armed conflict is higher in countries with low socio-economic status, low economic growth, and (especially) unequal income distribution. The poor may feel that they have less to lose from armed conflict compared to the rich and thus may have a higher predisposition to conflict. Health and nutritional indicators per se are important determinants of conflict onset: child mortality rates are 102% higher, child malnutrition rates are 50% higher, and malnutrition rates are 45% higher than in non-conflict countries (Pinstrup-Andersen & Shimokawa, 2008). Moreover, armed conflict is a major deterrent to economic development and poverty alleviation, leaving countries in a poverty-conflict trap. Given the very high costs of armed conflict in both economic and humanitarian terms, it is important to find ways to reduce the risk of conflict onset. Therefore, achieving the Millennium Development Goals, pro-poor policies, and prioritization of agriculture and health will contribute to reducing the risk of armed conflict (Pinstrup-Andersen & Shimokawa, 2008).

Leaders have great power to shape relations between nations. They have the capacity to enlist the loyalty of their citizens and may initiate a cycle of hostility. Citizens rarely criticize hostile acts of their own country, but they are aroused to patriotic fervor by hostile even retaliatory acts against their country (Staub, 1993). The process of leadership may produce faulty decision making, e.g., as a result of groupthink. In addition to the UN, there are only a few institutions (e.g., Organization of Security and Cooperation of Europe) whose purpose is to restrain hostile acts by one nation against another nation. Although some of these institutions adhere to a public health paradigm, to our knowledge none has tried to develop a public health framework so far. The objectives of this study were (i) to develop a concise yet fairly comprehensive public health framework that (ii) integrates economic, political, humanitarian, and military elements thought to be important for the primary, secondary and tertiary prevention of armed conflict and its consequences.

Methods

We did a selective literature review and included studies from medical and social science disciplines by searching the PUBMED (1999-present) and PsychInfo (1999-present) databases. The last search was performed on July 27, 2009 with the following search terms: "war OR armed conflict", "war + economy + military", "war + diplomacy", "war + agriculture + rural development", "war + education + health". The title, key words and abstracts of the studies returned from these searches were screened for the following criteria: (a) contains original data or is a systematic review, (b) makes specific reference to political violence, war, armed conflict or civil war, (c) focuses on one of the aforementioned domains (economy, military, health, education etc). Books, book reviews, editorials and additional reports were identified through other sources. Only English language publications were included.

Cross-referencing took place by examining all references of included studies on title, abstract and key words. We followed a systematic procedure to ensure standardization of adherence to the inclusion criteria, and text passages were extracted and summarized in the format that listed title, authors, year of publication, sources of publication, summaries and page numbers referring to the review category. This format formed the basis of the prevention matrix that was designed by combining primary, secondary and tertiary interventions with their implementation on the levels of the society-at-large, the community, and the family and individual. On the level of primary prevention, the framework

distinguishes universal, selective and indicated preventive interventions. Preventive interventions were classified to fit in the appropriate cell of a nine-cell matrix.

Our searches resulted in 703 articles and books. After removing duplicates, 352 records were screened and 53 full-text articles assessed for eligibility. Finally, 21 papers and 13 books were included in the analysis.

Risk factors for collective violence

Prevention requires identifying risk factors and determinants of collective violence and developing approaches to resolve conflicts without resorting to violence. A range of the most important risk factors for major political conflicts was identified and listed – without the pretension of being exhaustive – in Table 1 (Baker & Ausink, 1995; Carnegie Commission, 1997; Davenport & Stam, 2004; Esty, Goldstone, Gurr, Surko, & Unger, 1995; Hegre & Sambanis, 2006; Hewitt, 2008; Lim, Metzler, & Bar-Yam, 2007; Staub, 1993).

In Table 1, the relations between risk factors and consequences of collective violence are circular and the different categories of indicators influence each other in a systemic way. Although the ingredients of collective violence are universal and global, its prevention and resolution are particular to local context, resources and culture.

Prevention

Table 2 shows the matrix of the relation between primary, secondary and tertiary prevention with three intervention levels (see De Jong, 2002; Fairbank, De Jong, Friedman, Green, 2003). The matrix offers a generic framework addressing the complementary relationship between important players such as the various UN agencies, governments and (international) non-governmental organizations ((I)NGOs). The first of the three intervention levels is the macro-level, or the *society-at-large* level, which includes (inter)national agencies and governments. Interventions at this level are meant for all countries and belong to the realm of the UN and its Security Council, United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), governments, politicians, policy-makers, and several (I)NGOs. Interventions on the second level, or *the community level*, are directed at the total population in a conflict zone including refugees and Internally Displaced Persons (IDPs). Interventions at the community level are often provided by more specialized international agencies such as United Nations Refugee Agency (UNHCR), the World Food Program, Food & Agricultural Organization, United Nations Development Program, World Bank, local governments, (International) NGOs and advocacy groups. On the third level are *families and individuals*. Interventions at this level aim to relieve the plight of families and individuals. These activities are mostly covered by specialized UN agencies such as United Nations Children's Fund (UNICEF), WHO, United Nations Development Fund for Women (UNIFEM), governments, local NGOs and community and faith-based organizations. Depending on political will and socio-economic resources, most of the interventions at the community, family and individual level could be realized in a 5–10 years period, whereas interventions at the level of society-at-large will likely take substantially more time.

Primary, secondary, and tertiary prevention

The framework described in this paper distinguishes primary, secondary, and tertiary prevention. The goal of primary prevention is to eliminate a conflict or problem before it can occur. Universal, selective and indicated preventive interventions are included within primary prevention. *Universal* preventive interventions are targeted to the community of nations, the general public or a whole population group. *Selective* preventive interventions are targeted to nations or states whose risk of developing collective violence is higher than average based on the risk factors mentioned in Table 1. *Indicated* preventive interventions are targeted to high-risk countries or (sub)regions that show signs of collective violence foreshadowing a serious armed or ethnic conflict (US Committee on Prevention of Disorder, 1994).

Secondary prevention seeks to shorten the course of a conflict through early (crisis) intervention and case identification, and refer the conflict to relevant authorities such as the UN or governments. Tertiary prevention includes interventions to avert a conflict from becoming chronic, to prevent the conflict from recurring, and to contribute to rehabilitation and reconstruction.

Application of the matrix in Table 2 implies that some preventive strategies fitting the matrix are operational (i.e., are applicable in the face of or in the aftermath of crisis) and others are structural (i.e., ensure that crises do not arise). Italics in the text below refer to interventions mentioned in the matrix in Table 2.

Primary prevention in the society-at-large

Universal primary preventive interventions at the level of the society-at-large
Economy, governance and early warning. Preventive policies to reduce the potential for violent conflicts should address civil society and the quality of policy-making decisions. Moreover, it should develop legal standards, reduce inequality between groups, develop regimes for controlling destructive weaponry, and embrace development strategies that reduce poverty (Addison, 2000; Carnegie Commission, 1997). Economic growth *per se* does not prevent collective violence, but equitable access and economic opportunities do help to inhibit deadly conflict (Collier et al., 2003). Economic goals include growth, price shock regulation, and diversification decreasing dependence on natural resources. Economic prevention also includes rebel financing and so called Commodity Tracking Systems (e.g., for gold, coltan, or gemstones) (Bannon & Collier, 2003). Economic reconstruction aims at integrating external and internal efforts to restore essential services and restart economic activity.

Governance goals include dealing with corruption, weak and unaccountable government, secessionist movements, creating a path toward financial and political transparency, bringing an end to illicit trade by armed groups, and bettering corporate practices. Multiparty political systems are more important then democracy per se because multiparty systems are more inclusive and stable and have a lower probability of civil war (Reynal-Querol, 2005).

Multi-track diplomacy is useful in building relationships between opposing parties and governments by offering training in diplomacy and conflict resolution. The UN could invoke Article 99 of the UN charter more often (i.e., that the UN Secretary-General "may bring to the attention of the Security Council any matter which in his opinion may threaten the maintenance of international peace and security"). The aforementioned escalation of conflicts necessitates an early warning system that provides updated analysis of developing trends, political consultations to establish preventive engagement, a pragmatic course of action to respond to the warning signs, and a flexible repertoire of political, economic and military measures. It implies preventive diplomacy, negotiation by mediators, a rapid reaction force guided by the UN charter, and economic measures such as sanctions, inducements and economic conditionality (inducement implies the granting of benefits in exchange for a policy adjustment and makes cooperation more appealing than aggression; economic conditionality

Table 1
Indicators of states at risk of collapse and internal conflict with examples and consequences.

Indicators	Signs	Examples	Consequences
Inequality	Widening social and economic inequalities, both between and within population groups. Globalization, failed states, privatization, decline of social safety nets, deprivation, competition for resources, increased availability of weapons and landmines	Former USSR and Yugoslavia	The state is unable to manage political challenges and to maintain control over the use of force Increased mortality and physical disability, high death rates among civilians
	Struggle over access to resources such as oil, diamonds, gems, timber, and rivers	Angola, Congo, S Leone, Chad, Nigeria, Sudan, Cambodia, Indonesia	National army and rebel/guerilla forces engage in armed conflicts to secure access to resources. Manipulation of resource shortages for hostile purposes (e.g., using water as a weapon)
	Struggle over access to illicit drugs	Afghanistan, Colombia, Myanmar	Competition for income from narco-trafficking
Rapidly changing demographic characteristics	Rapid changes in population structures including large-scale movements of refugees and IDPs	Darfur	Massive pre/post-conflict population movements (e.g., refugees, IDPs) and competition for resources in the newly settled areas. Environmental degradation
	High rates of (infant) mortality	Uganda, Angola, Mozambique, Zepa (Balkan)	Decline vaccination coverage, increase infectious diseases, reduced access to health services
	Excessively high population densities	Rwanda, Burundi	Overcrowding, resource depletion, environmental degradation, high exposure to vectors, high risk of HIV infection, poor nutrition, increased risk of disease transmission
	High levels of unemployment, especially among youth	Liberia, Sierra Leone, Sri Lanka	Discontent, recruitment into rebel forcee
	Insufficient supply of food or access to safe water	Sudan, Tigray, Eritrea	Conscription or looting of farmers, destruction of water and sanitation infrastructure
	Disputes over territory or environmental resources claimed by distinct ethnic groups or governments	Ethiopia, Eritrea	Create a climate of warfare and involve civilian populations
Lack of democratic processes	Violations of human rights Criminalization or deligitimization of the state Corrupt governments, faulty leaders	Bhutan, Cambodia, Iran Yugoslavia, Guatemala, Iraq, Mozambique, Sierra Leone, Ethiopia	Torture, imprisonment, mutilation High military expenditures Use of violence to survive or to achieve their aims
Political instability	Rapid changes in regimes Ethnic composition of the ruling elite differing from the majority A legacy of vengeance-seeking group grievance	Somalia, East Congo, Liberia, Sierra Leone, Angola, Mozambique Rwanda, Burundi, Balkan (Bulgaria, Hungary, Romania, Slovakia)	Failed states Protracted cycles of violence and eruptions of ethnic clashes
Ethnic composition of ruling group different from the population at large or ethnic groups straddling interstate boundaries	Political and economic power exercised – and differentially applied – according to ethnic or religious identity Desecration of ethnic or religious symbols	Rwanda, Burundi, Sri Lanka, Balkan, Caucasus, Nagorno-Karabakh/Azerbaijan, Afghanistan Tibet	Inter-ethnic strife
Deterioration of public services	A decline in the scope and effectiveness of social safety nets designed to ensure minimum universal standards of service		Poverty, deprivation, discontent and subsequent involvement in armed struggle
Severe economic decline	Uneven economic development Grossly unequal gains or losses between population groups or geographical areas resulting from large economic changes Massive economic transfers or losses over short periods of time	West Africa, Great Lakes region of Africa	Reduced public expenditure, e.g., on health and education
Cycles of violent revenge	A continued cycle of violence between rival groups	Great Lakes region of Africa	Rise of complex humanitarian emergencies

rewards non-violent behavior by linking good governance to development assistance by donors). According to the Carnegie Commission (1997), both inducements and economic conditionality should more often been sought by the UN and its financial institutions. Economic pressure can only become effective when donor states harmonize their policies. Although every bilateral donor conditions aid on conflict, some countries decrease their aid based on either harboring or bordering a conflict, while others increase their aid (e.g., Belgium, Canada, France, New Zealand, Portugal, Switzerland, Spain and the UK decrease aid, while the US,

Table 2
Matrix showing the relationship between universal, selective, and indicated preventive interventions, and primary, secondary, and tertiary prevention.[a]

	Society-at-large/(inter)national	Community	Family & individual
Primary Prevention: eliminate a conflict or problem before it can occur	Universal preventive interventions Economy, governance and early warning Free media and press Resolve underlying root causes of violence (Inter)national laws Define and condemn human rights violations Research events and their consequences Set standards for intervention and training Expand security institutions Military's role of last resort Reinforce peace initiatives and conflict resolution Arms and landmine control Prevent the reemergence of violence Transnational collaborative projects Selective preventive interventions Humanitarian operations War tribunals and the persecution of perpetrators Peace-keeping forces Indicated preventive interventions Human rights advocacy	Universal and selective preventive interventions Rural development and food production Community empowerment Decrease dependency and learned helplessness Public health and education Peace education and conflict resolution in schools Public education Security measures	Universal & selective interventions Include women and children in the distribution of economic growth Family reunion/family tracing Family/network building Improvement of physical aspects Public health and education
Secondary Prevention: shorten the course of a conflict or problem	Humanitarian relief operations Reparation and compensation Voluntary repatriation (Co-occurring) Natural disasters: quality standards	Conflict prevention & resolution Crisis intervention Vocational skills training	Recruitment of child soldiers Reparation and compensation for afflicted families Public (mental) health and disease control Crisis intervention
Tertiary Prevention: prevent a conflict from becoming chronic, to recur, and to contribute to rehabilitation and reconstruction	Peace-keeping and peace-enforcing troops. Peace agreements	Reconciliation and mediation skills between groups	Involve the family in rehabilitation and reconstruction

[a] Some of the cells are compressed by taking universal, selective and indicated interventions together in order to facilitate reading. Moreover, some interventions apply both to primary, secondary and tertiary intervention, and on a national and community level (for example, reinforcing peace initiatives).

Russia, Denmark, Finland, Germany, Ireland, Japan, the Netherlands and Norway increase their aid) (Balla & Yannitell Reinhardt, 2008). The international donor community should have more insight on how much funding is spent on specific sectors such as education and health, and on the rationale of having "donor darlings". Girardian mimesis (Girard, 1976) plays a role both among donors and among perpetrators. When violence is introduced by perpetrators, it is mimetically returned through reciprocated abductions, the destruction of homes, mass killings and ethnic cleansing. The result is mistrust, mutual hatred and extreme stress, necessitating reconciliation to transform ongoing cycles of vengeance to coexistence. The media and local NGOs are often the first to be aware of grievances or social processes that may result in violence, which leads to the next intervention.

Free media and press. Free journalism and free media are able to provide an important contribution to the recognition and the dissemination of information about events and human rights violations. Instead of addressing hatred-induced emotions (as happened in Rwanda, for example), the media can play a role by featuring conflicts in a way that engenders constructive public considerations and ways to avoid violence. Humanitarian workers may have first-hand knowledge of abuse and can play a role in bearing witness (Orbinski, Beyrer, & Singh, 2007).

Resolve underlying root causes of violence. To strengthen *structural* prevention (i.e., ensure that crises do not arise) one has to address the root cause of violence. Structural prevention or peace-building comprises strategies to reduce unemployment, ensure fundamental security, well-being and justice, temper discrimination and ethnic contradictions, and rebuild societies. Structural prevention requires a state with an accountable bureaucracy and a macroeconomic management structure that opens the country to the international community and the global economy. In addition, the state should address the issue of well-being by removing barriers to equal opportunity by providing access to basic necessities, such as health services and education. The state should also provide an opportunity to earn a livelihood by stimulating poverty reduction and protecting the environment. Regarding jurisdiction and legal competence, we mainly focus on the perspective of international organizations. International laws are needed to deal with the four main sources of insecurity worldwide, i.e., access to land and resources, nuclear and other weapons of mass destruction; confrontation between armed forces; and sources of internal violence such as terrorism, organized crime, insurgencies, and repressive regimes.

(Inter)national laws. To contain internal violence such as terrorism, organized crime, and active insurgencies, states need laws, an effective police authority, an accessible grievance redress system and a fair penal system.

International laws should emphasize three areas including human rights, humanitarian laws, and non-violent alternatives for dispute resolution. Humanitarian laws include the need to provide legal underpinning for UN field operations and should also address the needs of vulnerable groups, the freedom of religion, and the right to preserve non-harmful cultural practices.

Defining and condemning human rights violations. A good example of protecting a vulnerable group, such as torture victims, is the United Nations' definition of governmental torture. Health professionals should be trained to abstain from any involvement in human rights abuses such as torture.

Research into the prevalence of events and their consequences. Measuring war-related events may result in a reduction of the frequency of these events. Interdisciplinary research can help to verify facts, disclose the truth, and improve interventions. Research can be regarded as a form of non-monetary reparation that serves the moral welfare of the survivors.

Setting standards for intervention and training. Setting standards by the UN, international foundations, and the NGO community may help to increase the quality of all types of interventions at all levels.

Expanding security institutions and strengthening non-violent means of preventing and ending armed conflict. Regional mechanisms require long-term action. It aims at a complex set of measures, including expanding global and regional security institutions, strengthening non-violent means, such as cooperation, dialogue and confidence-building. Because most current conflicts occur within rather than between states, the regional efforts should monitor and subsequently focus on warring factions and parties in their region. In addition, (inter)regional security mechanisms can *clarify the military's role of last resort for preventing and ending armed conflict.*

Reinforcing peace initiatives and conflict resolution. Political leaders may be able to diminish hostility and can be stimulated by the international or regional community to build an atmosphere for social reconstruction or reconciliation (e.g., Gorbachev–Reagan, Mandela–de Klerk, Dalai Lama).

Arms and landmine control. This includes creating military barriers to limit the spread of the conflict and deny belligerents the ability to resupply arms and refraining outsiders from providing weapons, funds and landmines. Despite the 1981 Land Mines Protocol and the 1997 Ottawa Treaty, one out of every 236 Cambodians and one out of 1250 Vietnamese has a disability due to landmines or Unexploded Ordnance (UXO) (Asia Watch & Physicians for Human Rights, 1991).

Prevent the reemergence of violence. It is necessary to create a secure environment in the aftermath of conflict with stabilizing security forces that separate enemies and restore legitimate political authority, i.e., install functioning police, judicial and penal systems.

Transnational collaborative projects such as educational, cultural, and scientific exchange. Scientific, cultural, and educational exchange can help to overcome prejudice, ethnocentrism, and nationalism and can help to promote free exchange of ideas.

Selective primary preventive interventions at the level of the society-at-large
Humanitarian operations. Provide humanitarian aid to innocent victims (refugees, IDPs). Make sure that the crisis response integrates humanitarian, economic, political and military elements.

War tribunals and the persecution of perpetrators. In the aftermath of collective violence, the legitimacy of reconciliation is essential. Three common approaches to bring perpetrators to justice are: (1) the visible use of the existing judicial system; (2) the establishment of a truth and reconciliation commission and; (3) the reliance on or the establishment of international tribunals.

Peace-keeping forces. Peace-keeping and peace-enforcing play an important role in the prevention or re-escalation of armed conflicts. A standing rapid reaction force of at least 5000 troops with an operational headquarters and equipment can respond quickly to social conflict.

Indicated preventive interventions at the level of the society-at-large
Human rights advocacy. Human rights advocacy is an indicated preventive measure for survivors of human rights abuses including torture and GBV. Every state has the responsibility to redress human rights violations.

Secondary prevention in the society-at-large

Humanitarian relief operations
Food, shelter, water supply, and public health efforts provide relief, restore the social safety nets that were destroyed before violence broke out, and buffer economic tensions and ethnic contradictions.

Reparation and compensation
Every state has the responsibility to redress human rights violations and to enable victims to exercise their right to reparation (Van Boven, Flinterman, Grünfeld, & Westendorp, 1992).

Voluntary repatriation
Another universal preventive activity is to work toward political solutions that allow for voluntary migration or repatriation to the place of origin.

(Co-occurring) Natural disasters: quality standards
Natural or climatological disasters may co-occur or may be superimposed on the effects of political violence. A number of (inter-)national initiatives and disaster preparedness training of the disaster-prone segments of the population can have a preventive effect, e.g., setting quality standards for buildings in earthquake or landslide-prone areas or river beds, setting higher quality standards for the construction of nuclear power stations, providing better access to land in areas with land slides, better alarm systems for floods, cyclones or hurricanes, and sheltered areas and evacuation plans in areas that are hit by volcano eruptions or typhoons.

Tertiary prevention in the society-at-large

Peace-keeping and peace-enforcing troops
Peace-keeping missions can help monitor, supervise, and verify cease-fires and settlement terms and restrain tense situations. "Thin Blue Line" (i.e., UN police forces) preventive deployments may prevent the spread of hostilities under the aegis of the Security Council.

Peace agreements
Peace agreements should focus on implementing long-term change, mechanisms for consensus building (e.g., constituent assemblies), ongoing relationships between former warring parties, power-sharing arrangements, economic reconstruction, and justice.

Primary prevention at the community level

Universal and selective primary prevention at the community level
Rural development and food production. Rural development initiatives help local populations, refugees, and IDPs to enhance their economic capacities and increase their food security, resiliency and quality of life. Rural development aims at improved rural

infrastructure, better living conditions and more secure livelihood for the population. This can be achieved through increasing food production, improving its distribution, and by setting up small-scale income-generating projects. If focused on areas with simmering instability or increasing grievances, these agricultural policies can play a critical role in reducing the risk of armed conflict, including riots triggered by high food prices (Hegre & Sambanis, 2006). These projects may compensate for a lack of land and prevent competition between local populations and IDPs or refugees. Rural development is one aspect of empowering a community:

Community empowerment. Community empowerment aims at revitalizing helping skills which are not utilized by the local people due to demoralization, collective apathy or a lack of appropriate knowledge. Empowerment activities involve community members to help themselves, their families, and their neighbors. These interventions lead to communal pride, a psychological sense of community, and stimulate resource gain cycles (Hobfoll, 1998). Rural development and empowerment diminish dependency:

Decreasing dependency. Decreasing dependency and learned help-lessness, which often tend to develop in the aftermath of human-made disasters, is important. Currently, instead of being regarded as victims, survivors are often regarded as resilient people from cultures that have developed ingenious coping strategies. Reduction of dependency and the promotion of autonomy can be stimulated by involving local people in community interventions, health and educational activities, and management and administrative issues. Religious leaders and healers should be stimulated to continue their rituals and ceremonies. Musicians, dancers, and storytellers should be allowed to organize leisure activities in closed communities like refugee and IDP camps.

Public health and education. The impact of conflict on health care and education services is wide ranging. Military action often undermines public health and disease-control programs that extend well beyond the period of active warfare, with reduced health sector spending, and reduced surveillance, prevention, treatment, and vector control (Beyrer et al., 2007; Ghobaraha, Huthb, & Russettc, 2004; Pedersen, 2002). Access to health and education is often reduced due to: (1) security concerns and reduced geographic and economic access; (2) the service infra-structure, the logistics and equipment being affected or deliber-ately destroyed and; (3) a scarcity of human resources because personnel flee the area, leave the country, or are targeted by armed forces.

Health and education and other sectors can further conciliation and collaboration by (1) setting a policy to strengthen equitable health and educational services; (2) reconstructing the former infrastructure; (3) developing human resources by a cascade of training levels; (4) supplying educational materials, food and nutrition, medicines, and vaccines; and (5) creating a monitoring and surveillance system. There are several good examples of 'peace through health' programs (http://www.humanities.mcmaster.ca/peace-health).

Peace education and conflict resolution in schools. Education is a force for reducing intergroup conflict by enlarging social identi-fications and by creating a basis for fundamental human identifi-cation across a diversity of cultures. Pivotal educational institutions such as the family, schools, community-based organizations, and the media have the power to shape attitudes and skills toward decent human relations—or toward hatred and violence. Much of what schools can accomplish is similar to what parents can do, such

as employing positive discipline practices, teaching the capacity for responsible decision making, fostering cooperative learning procedures, and guide children in pro-social behavior both in and outside of schools. They can convey an interest in other cultures, making respect a core attribute of their outlook on the world.

Public education. Public education is a community intervention with the potential to provide large numbers of people with infor-mation about aid, legal rights, and any numbers of issues that will help them cope with their particular situation. In humanitarian crises, public education can be used to quell rumors and help the community to have a more realistic view of the situation. Public education and community campaigns can involve educating of citizens on how to prevent violence of all types toward children, spouses, the elderly and individuals with disabilities. In addition, young people can be trained in methods of conflict resolution and help those who are more vulnerable because they lost a family member or their possessions.

Security measures. Survivors of wars and other types of disasters are often re-traumatized by robbers or gangs of armed bandits. Shelling, ambushes, land mines and UXOs are an additional plight and need to be addressed in order to create a safe environment, especially in camps with a majority of women and children.

Secondary prevention at the community level

Conflict prevention and resolution

Local organizations may (1) monitor conflicts and provide early warning; (2) convene adversarial parties; (3) undertake mediation between the parties and or the population groups involved; (4) develop and train conflict resolution with the hybridization of traditional or academic methods of conflict resolution (e.g., the gacaca in Rwanda); (5) strengthen institutions for conflict resolu-tion involving local and religious leaders, healers, and the ritual complex; (6) foster development of the rule of law.

Crisis intervention

Crisis intervention involves the intervention of police forces or peace-keeping troops when tensions between local groups erupt or when there are armed activities by paramilitary forces, rebels, or criminals.

Vocational skills

Vocational skills training may help the local community to develop economic activities. Farmers may have lost their land, civil servants their jobs, and demobilized soldiers and ex-child soldiers their position, such that all have to learn a new trade in order to set up income-generating activities.

Tertiary prevention at the community level

Reconciliation and mediation skills between groups

The aforementioned peace education and conflict resolution skills can be expanded to adults and religious and community leaders.

Primary prevention at the level of the family and the individual

Universal and selective primary prevention at family level
Include women and children in the distribution of economic growth. In vulnerable societies, women are an important source of community stability and vitality. Even under adverse circum-stances, women are often engaged in small-scale trade or horti-culture around the house. Women-operated businesses, micro-credit programs, education for girls, and involvement of women in

decision making are important. For children, it is important to have access to education as the main vehicle for stabilization and healing. In addition, children should have access to basic health services and not be exploited economically.

Family reunion/family tracing. A supportive network, preferably the family, is the main vehicle for healing. Western-style orphanages or children villages should be regarded as a last resort – e.g., in cases of massive loss of family members due to war or disease – because these facilities may create additional problems and easily become a breeding place for bandits or prostitution. In collaboration with other organizations, abandoned or orphaned children should be accommodated within their extended family or within foster families, and international and local organizations should assess whether one or both parents or other first or second-generation family members are alive.

Family/network building. Family/network building promotes the family network or other types of networks so that families with similar problems to help each other, share certain rituals, or get involved in human rights work (also see the empowerment section above).

Improvement of physical aspects. For the well-being of families, it is important that they are involved in the development of their life-world, including the physical aspects of their habitat or refugee camp. This includes discussing acceptable amounts of water, decreasing overcrowding, allotting land to grow vegetables, varying diets, drainage of the terrain, and providing space for children to play and for mothers to take care of their babies or infants. Sometimes relief agencies are not aware of the cultural taboos surrounding the disposal of waste or excrements.

Public health and education. This is similar to a sub-primary prevention at the community level. Emphasize facilitation of linkages between health care and education ministries and NGOs, promote equitable social structures, expand capacity building and develop information systems.

Secondary prevention at the level of the family and the individual

Prevention of recruitment of child soldiers

Children are often recruited when there are no other means of subsistence and hence become easy targets for government armies and rebel forces. Therefore, it is necessary to ensure vocational skills training for child soldiers. Such training would need to address the transition from a 'combat mode' to a 'civil mode' and use reconciliation and cleansing rituals to reintegrate children in their communities. Rehabilitation services for combat-related injuries, such as loss of hearing, sight, and limbs as well as for psychosocial problems and poor control of aggression will be required (Machel, 1996).

Reparation and compensation

Reparation and compensation for afflicted families. Compensation is a form of reparation that is to be paid in cash or provided in kind. The latter includes health and mental health care, employment, housing, education and land.

Public (mental) health and disease control

Control of infectious diseases such as measles, tuberculosis, and HIV is warranted when the service delivery system is destroyed and morbidity and mortality are on the increase. *Self-help groups* should be formed for ex-combatants, ex-child soldiers, widows, unaccompanied minors, survivors of gender-based violence and torture, mothers with chronically disabled children, the elderly, and

substance abuse. Culturally appropriate family, group or individual counseling, and various forms of psychotherapy, alone or in combination with pharmacotherapy will also be required, as well collaboration with healers and the sector of complementary and alternative medicine.

Crisis intervention

A crisis team can intervene when health emergencies, suicide, domestic violence or attacks by rebels, the army or paramilitary forces occur. A quick response calms and supports the family, assists in referral, and activates community and family support for victims.

Tertiary prevention at the level of the family and the individual

The goal of tertiary prevention is to reduce anomia, apathy, and chronic disabling conditions through active rehabilitation and developing skills for peaceful conflict resolution. Collective violence in low-income countries often takes place in collectivistic and interdependent cultures where – as long as family members are around – rejection by the family is exceptional. Hence, there are ample opportunities to involve the family in rehabilitation and reconstruction.

Discussion

This paper has developed a concise framework that accommodates a variety of preventive interventions related to political violence. The framework shows how multi-sector, multi-modal and multi-level preventive principles involving the economy, governance, diplomacy, the military, human rights, agriculture, health, education and journalism can be applied in an integrative and eclectic way. This public health approach also shows how prevention can be molded to the requirements of the specific historic, political-economic and socio-cultural context. Moreover, it may help to clarify the complementary relationship between the UN and (Non)Governmental actors. It also shows how the diplomatic, political, criminal justice, human rights, military, health and rural development sectors can collaborate to promote peace and prevent the aggravation and continuation of violence. The framework may help to identify gaps in our knowledge and to guide the future elaboration of a preventive approach. In the field of public health, randomized controlled trials are used to study causal influences in a controlled context for evaluating clinical or preventive interventions. Prevention of political violence addresses whole communities, populations, or regions. It is obvious that randomized community designs are not feasible for ethical and political reasons. However, quasi-experimental studies, such as those using matching techniques to reach comparability, and time-series designs offer an alternative. We certainly need to comprehend better the micro, meso and macro-levels of political, economic, social, cultural and historical processes. Further efforts are needed to continue expanding the spectrum of effective preventive interventions, to improve their effectiveness and cost-effectiveness in varied settings, and to continue strengthening the evidence base. This requires a process of repeated evaluation of preventive policies and their implementation.

The presented framework also has some significant limitations. It is prototypical and needs elaboration. The list of predictors of political violence is not exhaustive. The framework does not define the directionality of the relationships between risk factors, moderators, mediators and dependent variables, nor does it suggest how it can be tested and validated or which milestones can be used for each preventive intervention. We did not include the grey literature. One may also question whether the distinction between primary, secondary and tertiary preventive interventions fits with the real world, and whether certain interventions should

be located in another place in the matrix. For example, when the international court decides to prosecute a president – such as Bashir of Sudan – this may be regarded as a secondary and tertiary preventive intervention (i.e., it shortens the conflict and prevents the conflict from becoming chronic and contribute to rehabilitation and reconstruction of the afflicted regions). Simultaneously, it has a primary preventive objective in warning politicians that in the current world impunity does not exist. However, the reverse may happen: the president may feel threatened by his political peers, fear a coup d'état, hide his involvement, and decide to intensify hostilities. Prosecuting a president without further steps may thus aggravate hostilities, which is contrary to the objective of the initial action of the international court. This is related to the circularity of the contributing factors in a complex system.

One of the differences in today's world compared to events in places such as Cambodia, My Lai, Nanking, Angola, East Timor, Chechnya, Sri Lanka, Sierra Leone, Burundi, Rwanda, Srebenica or Tibet is that the world knows about political violence, genocide and massacres, and that the world has started to act. To do this in an effective and balanced way requires a large coordinated and long-term effort and commitment.

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