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A CONCEPTUAL FRAMEWORK FOR PUBLIC HEALTH ANALYSIS OF WAR AND DEFENCE POLICY

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Abstract

Concepts of national security and human security can be tenuously balanced in any assessment of the risks and benefits of defence development. In order to ensure an effective balance is maintained in the interests of both human and national security, new paradigms and research agendas for pre-event public health analysis of war and defence policy should be applied. This paper discusses traditional approaches to war and public health, and considers the benefits of a shift in public health focus from post-event emergency relief to pre-event analysis of war and defence policy. Three concepts of public health are applied to the analysis of defence policy – injury epidemiology, public health surveillance and social epidemiology. We conclude that a refocus on pre-event analysis will strengthen the role of public health in contributing to prevention of war and in the reorientation of defence planning towards the protection of human security and not only the state.

Introduction

Deaths rates in war reached unprecedented levels in the 20th century, with the increase in deaths far out of proportion to increases in population. There were twice as many civilian deaths (34 million) as military deaths (17 million) in World War II (Holdstock, 2002). A large proportion of these deaths were due to indirect causes related to conflict, including insufficient and unsafe water supplies, non-functional sewerage and restricted electricity supplies, deteriorating health services with insecure access, and the flight of health professionals. In absolute terms, the major causes of mortality during complex emergencies such as war are diarrhoeal diseases, acute respiratory infections, neonatal causes and malaria (Burnham et al., 2006, Burnham and Roberts, 2006, Black et al., 2003). Yet typically it is Ministries of Defence and not Ministries of Health that make assessments (necessarily inadequate) of the likely social and population-health outcomes of war.

Defence ministries document the physical causes of morbidity and mortality in wars, but little or no research or public policy debate is oriented toward reducing the impact of war on civilian populations. Analyses of war and defence policy are typically

applied from a national security perspective. In contrast, a human security perspective on war and defence policy is less commonly articulated. Recent attention has been focussed on the concept of "human security" as a distinct but complementary concept to that of national security. Human security can be defined either as the absence of conflict, or more broadly as encompassing human rights, good governance and access to health and education (Human Security Centre, 2005). Human security thus distinguishes the concerns of individuals and communities from the broader concerns of the state.

The objective of this paper is to identify the role of public health in the analysis of pre-event scenarios of conflict. We argue that one of the main reasons for the marginalization of public health in war planning and national security assessments has been the failure to develop effective methods of pre-event analysis which focus on human security. This results in the inability to adequately forecast the long term impacts of conflict on the health of populations, and therefore acts as a constraint on public health participation in the analysis of war and defence policy and decision making.

The concept of "human security" was first elucidated in the United Nations Development Programme (UNDP) World Development Reports of 1993 and 1994. Security was analysed in terms of environment, community, food security, politics, personal security and finally "health security." The concept of human security acts to stimulate "forward looking contingency planning" (Gutlove and Thompson, 2003, p. 17-34). Human security facilitates contingency planning through the capacity of the concept to grasp the interdependency of social sectors in securing survival. For example, the functioning of public health referral systems is contingent upon ensuring the political and personal security of health professionals and communities. In the absence of this security, free movement and access of the population and health workforce between primary and secondary levels of the health care system cannot be assured.

Public health is therefore a central pillar of any concept of human security. In recognition of this, the Special Rapporteur on human rights at the United Nations recently developed an agenda for "right to health." The Special Rapporteur articulates accessibility to quality functioning public health care services as a fundamental social right of individuals and communities. In recognition of the multi-dimensional nature of human security, the Special Rapporteur observes that public health systems are core social institutions, in much the same way as is a fair justice system or democratic political system (Hunt and Human Rights Council, 2008).

The Changing Nature of War and Its Impact on Population Health and Development

Historians have highlighted the role of modern technology in reshaping the character of warfare, particularly its changing impact on military personnel and civilians. The increasingly destructive capacity of war-making technology is extending the reach of

traditional warfare and the level of destruction caused to the economic and social infrastructure of societies in conflict is increasing. In terms of scope and impact, wars are becoming both more intra-state and more civilian. Between 1946 and 1991, there was a twelve fold increase in the number of civil wars (Human Security Centre, 2005). As societies become more urbanised, distinctions between military targets and civilians have been blurred, leading to the modern phenomenon of the so called "infrastructure war" where urban power and water systems, as well as civilian populations, are strategic military targets (Nokkala, 2002).

As a result the rate of civilian deaths in war increased dramatically throughout the twentieth century. In the First World War, 14% of war deaths were civilians. This increased to 67% in the Second World War (Sidel, 1995). The first Gulf War and its aftermath provide an illustration of the size of the effect of conflict on civilian mortality rates. A comprehensive assessment of the impact of the January-February 1991 Gulf War on mortality rates estimated that there were 111,000 civilian deaths from "post-war adverse health effects", the largest number of casualties caused by the war (Daponte, 1993). Of these deaths, 70,000 were children under the age of 15. A more recent assessment has indicated that in Iraq, pre-invasion mortality rates were 5.5 per 100 people per year, compared with 13.3 per 1000 people per year in the 40 months post-invasion. It has been estimated that 654,965 people (or 2.5% of the Iraqi population) died as a consequence of the war (Burnham et al., 2006). Similarly, a national survey conducted in 2004 following conflict in the Democratic Republic of Congo found that the crude mortality rate of the population was 67% higher than pre-conflict measurements (Coghlan et al., 2006).

This changing nature of war has recently generated a literature that investigates and analyses the impact of conflict on population health and development. This collective, preventable violence practiced under the banner of national security produces health effects long after the war has ceased. Mortality rates remain high for many years after conflict has ended. The World Health Organisation (WHO) Global Burden of Disease Study indicates that 15% of global disease burden is attributable to injury (Murray, 2008).

UNICEF statistical tables clearly document the impact of conflict on the most vulnerable targets of war, women and children. Of the countries with the ten highest under 5 mortality rates seven (Sierra Leone, Angola, Afghanistan, Liberia, Somalia, Guinea Bissau and the Democratic Republic of Congo) are all conflict or immediate post-conflict societies (Salama et al., 2004, UNICEF, 2005). Women are equally as exposed to risk as children at times of conflict, both directly as victims of war and indirectly as a consequence of the conditions created by war. Women and children comprise up to 80% of refugees worldwide (Ashford and Huet-Vaughn, 1997. p. 188). While the use of female rape as a weapon in war is often hidden, estimates of the number of women raped in the recent Bosnian conflict, where rape was consciously used as an instrument of warfare, range from 10,000 to 60,000. Meanwhile, the destruction of transport systems,

communications and hospitals due to conflict, and associated increases in poverty and insecurity, undermine the health referral systems on which women depend for their own and their children's survival (Grundy, 2001). Often, women of child bearing age die in village homes from post-partum bleeding, denied access to essential health care services. In the final period of hostilities against the remnant Khmer Rouge in the mid-1990s in Cambodia, the mortality rate on the battlefield was equalled by the number of deaths of mothers in Cambodian villages from pregnancy related causes (Grundy, 2001).

Current Public Health Approaches to War and Defence Policy

The escalating rate of civilian casualties in war makes a re-examination of the role of the public health professions and public health in relation to war more urgent. Traditionally, public health has played a significant role in military medicine and refugee health. Most public health planning is concerned with the management of post-event situations, typified by field emergency medicine in conflicts and disease control programs in refugee camps. Until recently, both the pre-event public health surveillance of at-risk populations and conflict decision-making or resolution have generally been considered to be outside the sphere of public health.

There are some signs that the public health community is making progress in contributing to the prevention and minimisation of the effects of war, in particular the role of International Physicians for Prevention of Nuclear War (IPPNW) in advocacy for arms control. UNICEF has taken a lead role in pursuing the protection of children's rights, ending the use of child soldiers and protection of children from landmines. Recent data indicates there has been a decline in armed conflicts around the world by nearly 40% since the 1990s and this decline has been attributed to the extensive efforts of UN agencies and non-government organisations (NGOs) in conflict prevention and peacemaking activities (Human Security Centre, 2005). The International Crisis Group has been established to assist with conflict monitoring (International Crisis Group, 2006). WHO has established a Health Information Network for Advanced Planning based in Geneva, with the primary purpose of developing an information system for effective contingency planning for health relief in complex emergencies (WHO, 2008). The Sphere project was launched in 1997 and entailed an extensive and broad-based consultation across the humanitarian community. Those involved were drawn from national and international NGOs, UN agencies and academic institutions. The project was responsible for the development of a Humanitarian Charter and identified Minimum Standards to be attained in disaster assistance in each of five key sectors (water supply and sanitation, nutrition, food aid, shelter and health services). Taken together, the Humanitarian Charter and the Minimum Standards contributed to an operational framework for accountability in disaster assistance efforts (The Sphere Project, 2007).

Despite these initiatives, the public health community remains on the margins of conflict awareness-raising, decision-making and mitigation while political, technocratic, legal and military representatives occupy the centre stage. In fact, the decision to go to war is generally made without any regard for the threat to public health. Human security as a concern of warring states has been relegated to the domain of the post-event response (attempted treatment of mass injury, management of refugees, and long term reconstruction). New methods are needed to provide a role for public health in pre-event prevention or alleviation of the effects of war.

Can Public Health Analysis Be Used to Predict the Effects of War and Defence Policy on Populations?

A pre-event public health analysis of war and defence policy should include at least three key approaches based on the paradigms of public health – injury epidemiology, public health surveillance and social epidemiology.

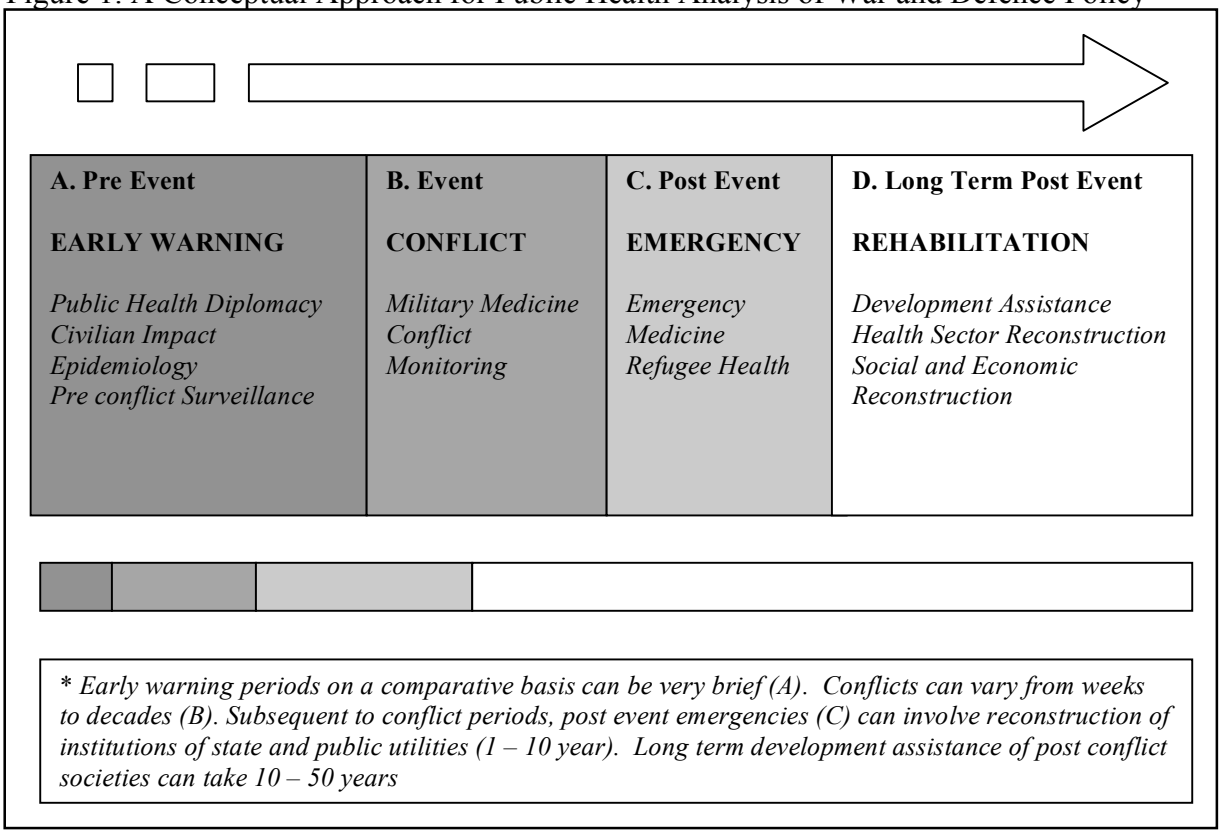
Injury Epidemiology and Collective Violence

Injury epidemiologists divide analysis of health outcomes into the temporal domains of pre-event, event, and post-event, and further analyse outcomes according to the exposure variables of host, environment, and vehicle of injury (or type of force). This framework can also be applied conceptually to the analysis of war and defence policy. That is, the scientific methodology used to estimate post-war excess deaths can also be used to inform pre-event conflict analysis in newly emerging conflict zones. Figure 1 illustrates a proposed conceptual framework of public health analysis of conflict, based on the temporal division of events that is characteristic of the approach of injury epidemiologists.

Currently, most public health interventions in conflict focus on periods B and C (conflict and emergency). Period A (the pre-event early warning) is an area of significantly less focus. Within this framework the main exposure variables – the character of the community hosting the conflict, the elements of the social and political environment that contribute most significantly to the conflict event, and the methods, strategies or vehicles of war employed – are considered. Using these methods both the features of the pre-conflict situation and predicated outcomes of unmitigated conflict can be estimated. A recent study which analysed data from conflicts in Sudan, Somalia, the Demographic Republic of Congo and Afghanistan suggested that high rates of civilian mortality are determined more by pre-existing fragility of the effected population than the intensity of the conflict. In many instances a high rate of civilian deaths during conflict shows that international development aid before the conflict was inadequate (Guha-Sapir and van Panhuis, 2004, Guha Sapir and van Panhuis, 2003). Pre-event analysis would

allow a longer time frame to prepare plans and interventions that could include conflict prevention, public health diplomacy, predicting civilian impact, epidemiological assessments of vulnerable populations, mortality and morbidity projections, preventive and preparatory activities for maintenance and restoration of public utilities, and ongoing mechanisms for public health surveillance and response.

Figure 1: A Conceptual Approach for Public Health Analysis of War and Defence Policy *



Public Health Surveillance and Political Surveillance

One of the difficulties in conducting accurate public health assessments in pre conflict and conflict situations is the control and manipulation of public information by warring states. In addition, little or no public health information in vulnerable states and conflict situations provides ideal conditions for this information manipulation. Currently, global assessments indicate that there is insufficient available data with which to make accurate pre-event public health estimates. A review of human security in 2005 concluded: "there is inadequacy of available data [on conflict], especially comparable year on year data that can be used to document and measure national, regional and global trends. In some cases, data are simply non-existent" (Human Security Centre, 2005). Other analysts have observed that, given the enormous cost of military intervention and subsequent rehabilitation of societies and economies, it is surprising there has been so

little invested in complex emergency early-warning, detection, preparedness and mitigation projects (Toole, 2006). Even so, given the significant extent of political surveillance that informs defence policy and notions of national security (protection of the state), an equivalent focus on public health surveillance in the pre-event scenario would provide a more balanced assessment of the potential impact of conflict on human security (the protection of individuals). Similar rigorous and systematic public health techniques to those used in the prevention and control of such social catastrophes as influenza epidemics, TB, HIV/AIDS and tobacco-related disease could be applied to planning for the impact of national and civil conflict. In these cases, public health planners establish criteria for high priority events that include assessments of the frequency, severity, cost, preventability, communicability and public interest of the health events under question (Teutsch, 2000). Scientific study in the pre-conflict period could include several themes that are guided by these principles of public health surveillance. Figure 2 outlines potential key analytical questions to be used in association with an analytical framework, along with a proposed research agenda for public health analysis of war and defence policy.

Figure 2: Research Questions and a Research Agenda for Guiding Public Health Surveillance of Potential Conflict

Research Questions for Pre Event Analysis of the Impact of Conflict on Public Health

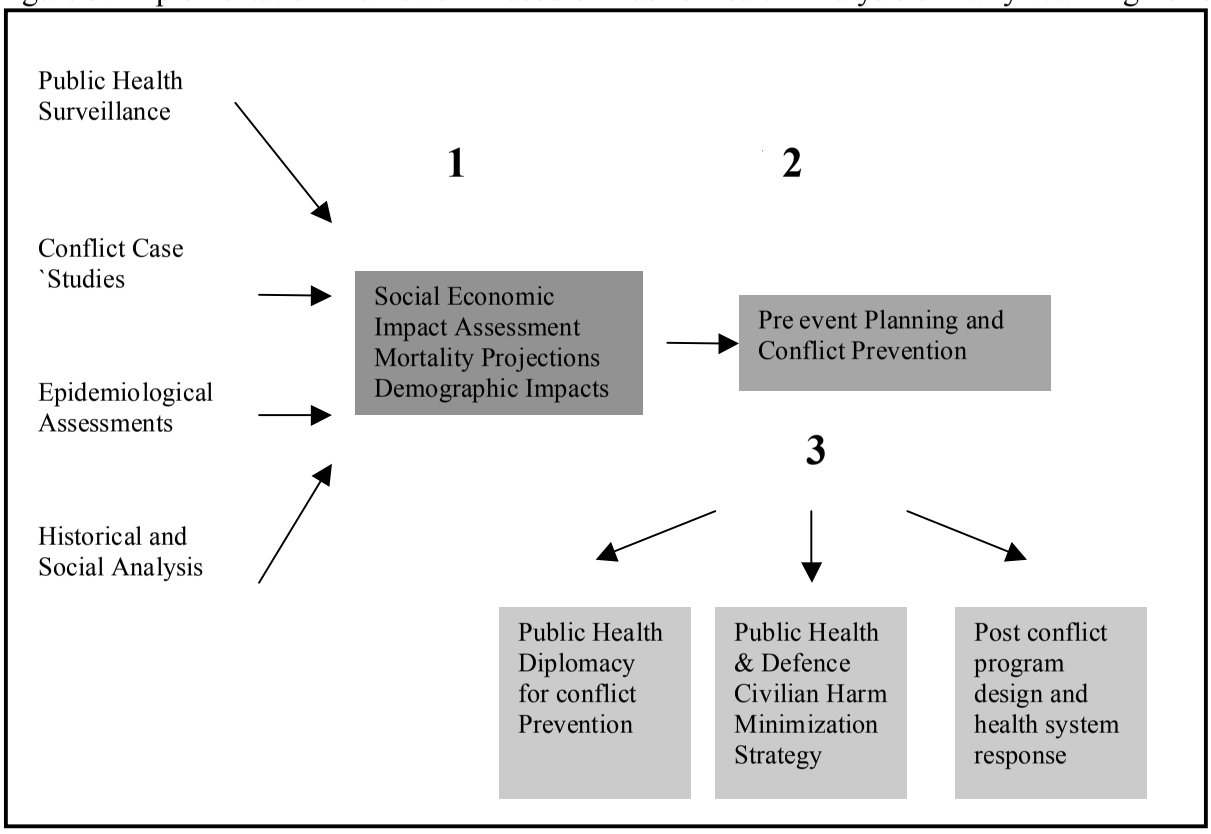
1. What is the *magnitude* of the population at risk, and the *current distribution and frequency of collective violence* against civilian populations?
2. What are the main *social and demographic characteristics* of populations most at *future risk* from collective violence?
3. What are feasible options for instituting *monitoring systems* to warn and detect of collective violence against civilian populations?
4. What are the main *aetiologies* of conflict?
5. How can conflict strategies be *evaluated*?
6. What is the likely impact of a range of conflict scenarios on the *immediate post conflict situation* in terms of food scarcity, population displacement and destruction of public utilities?
7. Are there case studies that can inform *projections of mortality* and *socio-economic impacts?*
8. Based on historical and social analysis, what are the likely impacts of conflict on longer term *social cohesion* and institutions of state?

A Research Agenda to inform Pre Event Analysis of the Impact of Conflict on Public Health

1. Research and development of a rapid assessment methodology by Ministries of Health, in partnership with Ministries of Defence, of the potential impact of conflict on populations according to a range of conflict scenarios. This could also include the development of guidelines recognised internationally through WHO or other UN agency for MOH country assessments of impact of conflict in populations – short, medium and long term
2. Research and development of methods to assess impact of war on social capital over the long term (including levels of institutional development)
3. Establishment of global conflict surveillance systems, with widely accessible information on previous impacts to guide modelling of future impacts
4. Testing the feasibility of strengthened conflict sentinel surveillance through establishment of independent mobile UN sponsored teams in pre conflict zones in order to report internationally verifiable information on health impacts of conflict – short, medium and long term

Based on the answers to some of these research questions, the framework shown in Figure 3 outlines a scenario whereby public health and defence planners can feasibly develop prevention or harm minimization plans and strategies through careful analysis of pre event epidemiological data, social scientific profiles and public health surveillance.

Figure 3: Implementation Framework Based on Public Health Analysis of Early Warning Period



Conflict prevention ("primary prevention") is not the only feature of a pre event public health analysis of war and defence policy. A main feature of public health pre event analysis is also focussed on the notion of harm minimization through careful analysis of a range of event scenarios ("secondary prevention"). Just what are the likely impacts of the emergency, given a specific range of conflict scenarios? The following factors would be taken into consideration (Toole, 2006):

- Potential for, and early detection of, conflict related food scarcity
- Potential for, and early detection of, disease outbreak and vulnerability
- Potential for, and early detection of, population movement
- Preparedness for interventions that mitigate public health impact.

This emergency preparedness planning should also be balanced against the need for longer term rehabilitation and development planning, focussing on the development

assistance needs of the country in terms of social and physical reconstruction, and the mitigation of excess morbidity and mortality post conflict (tertiary prevention).

Social Epidemiology and Social Pathology

There is an increasing recognition of the social origins of ill-health and of social and economic inequalities in generating conflict. Pathologies derived from conflict logically have their origins in social and political circumstances. The public health science of social epidemiology (the analysis of health outcomes based on social exposures such as place and class) can therefore shed some light on our understanding of the impact of conflict on human security.

Social epidemiology began with the observation that suicide is not just a characteristic of individuals but that it is also a characteristic of societies. This generated the notion of a social rate of suicide (Durkheim, 1997). More recent analyses have elucidated concepts of "unhealthy societies" (Wilkinson, 1997) and "the social determinants of health" (Marmot, 1999). Social epidemiology thus provides a scientific basis for accurate prediction of the immediate and longer-term health effects of potential conflict. Recent Western defence terminology such as "regime change", "surgical strike" and "pre-emption" are meant to imply that military interventions are time-bound and geographically contained. The use of such terms reflects a lack of awareness by political leaders and defence planners of the long term impact of conflict on the health and survival of societies.

The most immediate observation derived from the techniques of social epidemiology is that war is generally inflicted by wealthier societies upon poorer ones. A common characteristic of recent inter-state conflicts has been the unequal technological power of these warring states. Five permanent members of the UN Security Council sell 86% of the world's armaments. (Sen, 2001) The public health costs of this pattern of resource allocation is highly significant, particularly for developing countries that import 58% of the arms trade and export only 7% (Sidel, 1995). The interests of dominant states also prevail frequently in intra-state conflicts in which larger powers have a strategic interest. Between 1946 and 1991, the number of armed conflicts around the world trebled, almost exclusively occurring within economically poor countries. Inequalities are therefore both a cause and an outcome of mass conflict, and the probability of war decreases as national income and state capacity rises (Human Security Centre, 2005).

Perhaps the concept most pertinent to a new concept of public health conflict analysis is that of social capital, which is often defined as the level of trust and cohesion in communities, and has been identified in a wide body of research to be strongly associated with positive health outcomes (Bourdieu, 1986, Putnam, 2000). War destroys not only infrastructure and physical capital (which itself has adverse health effects as already seen) but it also destroys social capital – the essential ingredient for the maintenance and development of communities, social institutions, human security and the

state. Notably absent in pre-event defence assessments of conflict is any sense of the likely impact of conflict on the immediate destruction and the longer-term erosion of social capital.

Among the main long-term effects of conflict is the creation of societies made up predominantly of conflict survivors, as in Cambodia or Rwanda. In her analysis of the impact of conflict trauma on its survivors, Judith Herman (1997, p. 92) observes that for societies like these "...there is only one story – the story of atrocity. There are only a limited number of roles. One can be a perpetrator, a passive witness, an ally, or a rescuer. Every new or old relationship is approached with an implicit question: Which side are you on?" Under such conditions the re-development of social capital is long delayed. In some cases, the ongoing prevalence of social trauma from conflict may mean that the process of social rehabilitation becomes inter-generational.

The long term impacts on mental health post conflict have been assessed epidemiologically internationally. One study assessed the prevalence rates and risk factors for posttraumatic stress disorder in 4 post conflict countries. Rates were of the disorder were assessed to be 37.4% in Algeria, 28.4% in Cambodia, 15.8% in Ethiopia, and 17.8% in Gaza. The study found that conflict-related trauma after the age of 12 years was *the only risk factor* for the disorder in all 4 countries (de Jong et al., 2001). Thirty-seven years after the end of the genocidal Pol Pot regime, the Cambodian state and society is still undergoing economic, political and social re-construction. Even today, half the national budget is internationally funded, and until very recently infant and maternal mortality rates were among the highest in the region (Ministry of Health Cambodia, 2004).

The inclusion of broader sociological and historical analysis into epidemiological assessments of conflict and conflict prevention will position public health planners more strongly to make meaningful projections of the impact of conflict on populations over the immediate and longer term. Combining the skills and perspectives of injury epidemiology (population health), public health surveillance and social epidemiology (social health) will lead to a more critical understanding of the health status of populations threatened by or exposed to episodes of collective violence.

Conclusion: Balancing National Security and Human Security in War and Defence Policy Development

Recent assessments that "lack of post conflict planning" in states such as Timor Leste and Iraq has been a major contributing factor to the current social collapse and turmoil in those countries increases the need for more rigorous pre event public health and social analysis of conflict zones. In depth case studies of these recent conflicts areas and planning failures are required, in order to refine and develop the pre event methodological approaches to conflict prevention and harm minimization.

Scientific analysis can provide informed projections about the impact of war on the health and wellbeing of individuals and communities. Such an analysis also has the potential to equip health planners with the information on which to base preparatory and preventive interventions in the face of conflict. This approach requires an inter-disciplinary dialogue between public health, social scientists and defence planners, shifting the agenda from the role of public health in the post-event emergency and development assistance period to the role of informing pre-event public health analyses of defence policy. In doing so, public health planners have the potential to shift defence and war policy thinking from an exclusive focus on the protection of the state towards the more broad and longer term objective of protecting human security.

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