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The Impact of the *Intifada* on the Health of a Nation*

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This article describes the nature and extent of non-fatal injuries sustained by Palestinians during the first three months of the second *intifada* in late 2000 by looking at two sets of data. 10,279 cases were obtained from the records of the Red Crescent Organization, which provides first level emergency care via ambulance crews in the West Bank and Gaza Strip. For 6,071 cases in the West Bank, additional information was available from the Ministry of Health, which keeps records of first and second emergency level care provided at hospitals and health points. The Ministry of Health cases were classified by type of weapon, site of injury and level of treatment provided. Fifty-eight per cent of injuries occurred in young men 18–34 years, but 25 per cent occurred in school children, ten per cent in people over 50 years and five per cent in females. Fifty-nine per cent of the injuries were caused by bullets and 76 per cent of these affected the upper part of the body; 13.4 per cent of the injuries were severe, with major implication for disability and the need for long-term care and support.

KEYWORDS Disabilities Gaza Strip Injuries *Intifada* West Bank

Introduction

Fatalities in violent conflicts are easily counted and reported, but provide only partial account of the impact of conflicts on public health. In this article we describe the number, nature and likely long-term implication of non-fatal injuries sustained during the first three months of the second *intifada*.

The second Palestinian *intifada*, *Al-Aqsa*, began on 28 September 2000 as a result of the Palestinians' increasing frustration with the lack of progress in implementing the 1993 Oslo agreement,[1] the hardship brought on by dividing the West Bank into small areas separated and controlled by Israeli military rule and the continued building of settlement on newly confiscated Palestinian land.

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The second *intifada* was different and bloodier than the first (1987–94), as the confrontation was very intense, with tear gas and snipers, using live and rubber-coated metal bullets. A large majority of the Palestinian injuries resulted from teenage boys and young men pelting Israeli soldiers with stones.[2] The outcomes of such injuries, sustained during the first 94 days of the conflict, are described here. The article focuses on the types of weapon used, the site of injury, the age of the injured, the seriousness of the wounds caused and estimates of the burden of disability which the *intifada* will leave for health and social services.

Methods

Mortality and morbidity data were collected retrospectively from the Red Crescent (RC) and the Ministry of Health (MoH) from the beginning of the *intifada* on 28 September until the end of December 2000. The RC data were obtained from its headquarters in Ramallah for 10,279 cases from the West Bank and the Gaza Strip. Data were collected daily from the ambulances that attended all sites of confrontation, including details of all injuries treated on site or transferred to hospitals, with a daily update on mortality. Statistics detailed the numbers of dead and injured (including those who were injured or died in the field and never reached hospital) and the type of weapon used in various localities.

The MoH data covered 6,071 cases from the West Bank, which had already been included in the RC file. The source provided further information on the management of injuries in field hospitals and outpatient or inpatient care provided by any hospital in the West Bank (including all hospitals from the Government sector, private and Non-Governmental Organizations (NGOs) and from the only hospital of the United Nations Relief and Work Agency (UNRWA), including patients who died later or were referred to hospitals outside the Palestinian Territories. The data allowed classification of cases by sex, age, locality and type of weapon. Sites of injury were grouped into head and neck, chest and shoulder, abdomen, pelvis and genitalia, upper limbs, lower limbs and back, other non-specified sites, tear gas inhalation and panic attacks. The injuries were classified as mild, moderate and severe, depending on the medical management provided and/or the outcome, using the criteria described below. It is worth noting that most injuries and operations were due to bullets, not the casual head injuries or minor operations that are normally seen by these services.

Criteria of Injury

Mild (level 1):

- Rubber bullet in any site aside from head, discharged home;
- Wound, discharged home;
- Tear gas, discharged home.

Moderate (level 2):

- Rubber bullet to head, discharged home;
- All hospital admissions not requiring operation;
- Any fracture.

Severe (level 3):

- Any admission to intensive care;
- Any admission for head injury;
- Any operation;
- All referrals made to facilities outside of Palestine.

Dead (level 4).

Individuals in the third category, if they survived, were considered potentially disabled at discharge. This categorization can be disputed, but, to our knowledge, provides the best estimates of future disability, based on first hand knowledge of the type of injuries sustained, the treatments provided and the outcomes achieved.

The main limitation of the data is that the total numbers of injuries are less well known than the numbers killed. Nevertheless, the RC data are the most accurate available in the Palestinian Territories in terms of number of injuries and type of weapons used. Some information is missing from the hospital data, especially for management (n=695), outcome (n=691) and type of weapon (n=512), producing different totals in the analysis.

Results

Approximately three per cent of the injured were dead on arrival at hospitals. Others died later. The exact numbers and names are well known, but will not be discussed here.

Red Crescent Data Covering the West Bank and the Gaza Strip

RC data classifying the injuries by type of weapon are shown in Figure 1. Fifty-nine per cent were shot (21 per cent by live bullets), while 34 per cent were affected by tear gas inhalation. Bombs and shrapnel caused seven per cent of injuries.

Differences between regions are shown in Figure 2 (West Bank) and Figure 3 (Gaza Strip). In the West Bank, 57 per cent of casualties had been shot, with fewer hit by live bullets compared to the Gaza Strip, (14 vs. 42 per cent) and more by rubber-coated metal bullets (43 vs. 22 per cent). In the Gaza Strip, the proportion of live to rubber-coated bullets was three times higher than in the West Bank. Tear gas inhalation was less common and more people were injured through other causes.

FIGURE 1
PERCENTAGE OF INJURIES IN THE PALESTINIAN TERRITORIES BY TYPE OF WEAPON (N=10,279)

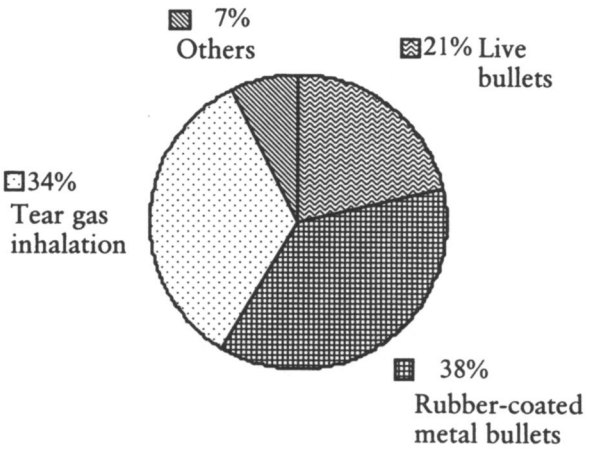


FIGURE 2
PERCENTAGE OF INJURIES IN THE WEST BANK BY TYPE OF WEAPON (N=7,732)

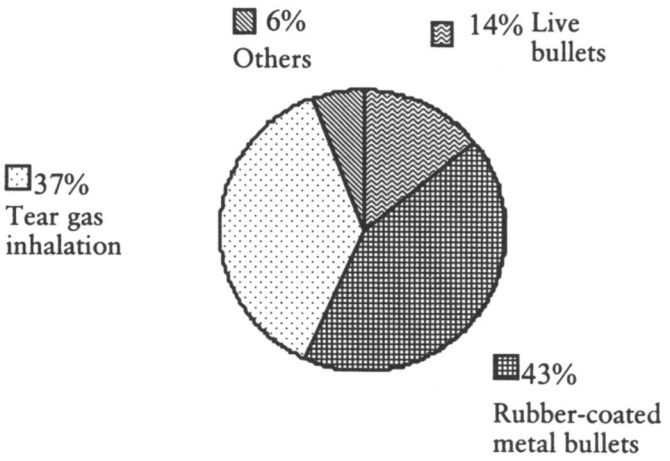
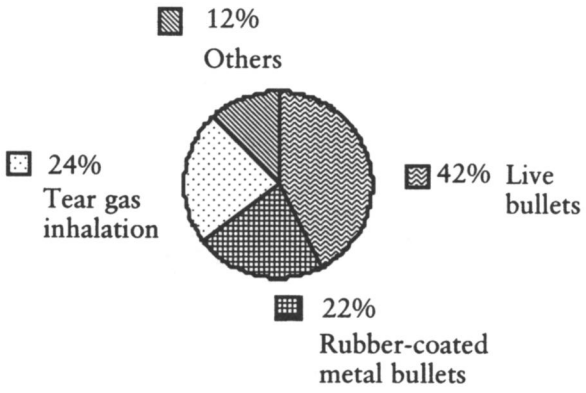


FIGURE 3
PERCENTAGE OF INJURIES IN THE GAZA STRIP BY TYPE OF WEAPON (N=2,547)



Ministry of Health Data on the West Bank

More than half of the injured were males aged between 18 and 34 years, 1523 (25 per cent) were 17 years or younger and 599 (ten per cent) were over 50 years old. Five per cent (320) were females (see Table 1). Of those injured by bullets, 26 per cent were aimed at the head and neck, 32 per cent hit the central part of the body from the shoulder to the genitalia and only 23 per cent reached the lower limbs (see Table 2).

TABLE 1
DISTRIBUTION OF INJURED BY GENDER AND AGE GROUP (N=6,071)

Gender	Age Groups in Years										
	0–12		12–17		18–34		35–49		50+		Total
	N	%	N	%	N	%	N	%	N	%	N
Male	193	85.4	1249	96.3	3422	96.8	365	88.2	522	87.1	5751
Female	33	14.6	48	3.7	113	3.2	49	11.8	77	12.9	320
Total	226	100	1297	100	3535	100	414	100	599	100	6071

TABLE 2
TYPE OF WEAPON AND SITE OF INJURY (N= 5,559)

Site of injury	Type of Weapon: Bullets N	Bullets %	Bombs N	Bombs %	Tear Gas N	Tear Gas %	Others N	Others %	Total N
Head and neck	830	25.8	99	28.1	3	.5	332	24.1	1264
Chest and shoulder	423	13.2	32	9.1	1	.2	97	7.0	553
Abdomen, pelvis and genitalia	475	14.8	35	9.9	3	.5	51	3.7	564
Upper limb	484	15.1	52	14.8	2	.3	223	16.2	761
Lower limb	754	23.5	59	16.8	3	.5	191	13.9	1007
Back	168	5.2	17	4.8	4	.7	32	2.3	221
Others	80	2.5	58	16.5	599	97.4	452	32.8	1189
Total	3214	100	352	100	615	100	1378	100	5559

Disability in the West Bank

In terms of seriousness of injury, 81 per cent of the records had data on specific treatment received at the hospitals. Of those, most of the serious injuries were caused by to bullets (see Table 3). Categorizing injuries into severe, moderate and mild, 13 per cent were severe, comprising all admissions to intensive care, head injuries, admissions requiring operations and referrals outside the Palestinian Territories. A further 20 per cent were moderate injuries; some of whom might become permanently disabled (see Table 4).

TABLE 3
OUTCOME OF INJURY IN RELATION TO TYPE OF WEAPON (N=4928)

Outcome	Type of Weapon: Bullets N	Bullets %	Bombs N	Bombs %	Gas N	Gas %	Others N	Others %	Total N
Dead	211	82.7	30	11.8	5	2.0	9	3.5	255
Admitted to ICU	45	90.0	2	4.0	0	0	3	6.0	50
Admitted for operation	459	88.4	13	2.5	1	2	46	8.9	519
Admitted to Hospital	509	73.7	51	7.4	22	3.2	109	15.8	691
Casting	68	69.4	2	2.0	1	1.0	27	27.6	98
First aid	1546	46.7	224	6.8	561	16.9	984	29.7	3315
Total		–		–		–		–	

TABLE 4
SERIOUSNESS OF INJURIES (N=5,380)

Seriousness of injury	N	%
Mild	3259	60.6
Moderate	1074	20.0
Severe	720	13.4
Death	327	6.1
Total	5380	100.0

Discussion

This study describes a fraction of the overall impact of the conflict on the health of Palestinians. The psychological effects, environmental destruction and disruption to policymaking,[3] which are more difficult to evaluate and have a bigger impact on health, are not discussed.

As war effects humans through the direct violence of bombs and bullets,[4] the use of highly trained snipers, tanks, helicopter gunships and rockets against demonstrators armed with stones[5] is likely to result in a high rate of injury and death among the demonstrators. This is highlighted by the rate of bullets shot at demonstrators in the Palestinian Territory (59 per cent), with a higher rate of use of live bullets (42 per cent) in the Gaza Strip compared to the West Bank (14 per cent). Bullets were aimed at demonstrators and stone-throwers regardless of age: 226 children under 11 and 1297 between 12 and 17 were injured. Some school children were accidentally entrapped at the confrontation sites, or happened to be going home from school. A similar observation was made in a study of Palestinians deaths and injuries by the Policy Unit of UNRWA[6] and documented by a Justice and Peace Commission report in the press. They reported that in recent confrontations in the Gaza Strip, snipers opened fire on Palestinian children every two minutes, causing at least 30 casualties in less than an hour; the youngest, seven years old, received a bullet in his lung.

Tear gas inhalation affected 34 per cent of cases, slightly more in the West Bank (37 per cent) compared to the Gaza Strip (24 per cent). Non-lethal weapons are intended generally to cause short-term disability, but may have permanent effects.[7] For example, the effect of tear gas inhalation on humans depends on the type of gas and its concentration. In one episode in the Gaza Strip, tear gas caused convulsions in adults although previously used tear gas had not had this effect. When questioned on Israeli television on 15 February 2001, the Israeli Defence Force stated that the tear gas canisters were no different to the ones used before and that the victims were probably acting.

With regard to the site of injury, more than half of the injured, including school children, were hit in the upper part of the body with 26 per cent hit on the head and neck. The effects of weapons depend on their design, purpose and use; for example, a high mortality to injury ratio can be associated with automatic rifles that causes multiple wounds, or with users aiming at the head or chest of the victim.[8] A group from Physicians for Human Rights, including forensic experts and an orthopaedic surgeon, visiting the Palestinian Territories concluded that the Israeli army's use of live ammunition and rubber-coated metal bullets to control demonstrators was both excessive and inappropriate and that, based on the high number of documented injuries to the head and thighs, soldiers appeared to be shooting to inflict harm, rather than in self-defence.[2]

It has been estimated that thousands of Palestinian young men and boys will become permanently disabled as a result of injuries due to the fragmented bullets fired using the Israeli M-16s, an American made light-weight field rifle capable of inflicting substantial damage. The bullet often breaks into tiny pieces after penetration, tearing muscles and nerves and causing multiple internal injuries, much like the internationally banned dumdum bullet. Robert Kirschner, a physician and forensic expert from the University of Chicago Medical School who visited the area with Physicians for Human Rights, said that 'by inflicting all these leg wounds, it's a form of summary punishment. It causes a permanent disability'.[2]

Hospital records show that bullets caused the injuries of 90 per cent of cases requiring treatment at an intensive care unit and 83 per cent of the cases arriving dead at hospital. The proportion of severe injuries causing permanent disability was estimated at 13 per cent, with 20 per cent sustaining moderate injuries, some of which might also lead to disability. Another study[10] forecast disability in 15 per cent of all injured cases[9] and the MoH report on the rate of moderate and severe disability estimated 39 per cent.[11] The true rate is probably somewhere between those figures, particularly if the long-term effects of tear gas inhalation and the psychological trauma (not discussed here) are included.

The long-term needs of the disabled are a serious matter for the health care system, as there are only three non-governmental rehabilitation centres in the West Bank and one in the Gaza Strip, with a limited number of beds and occupancy rates of more than 100 per cent on most days. Community-based rehabilitation is also constrained by the overwhelming medical needs of the injured and by the imposed barriers to movement. The net result is a scattered population of disabled young men who are treated as heroes today, but face a lifetime of disability in the care of their families. A similar situation arose in Lebanon in 1996 as the chronic and diverse needs of people with war injuries are often neglected and underestimated.[12]

There is an urgent need to increase the number of centres dealing with disabled adults and children to meet the expected disability rate and to allow injured men and women access to the services they need in the West Bank and the Gaza Strip. The present community-based rehabilitation services should be linked directly with new centres to ensure continuity of care. Such needs will continue so long as there is occupation and resistance.

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