

# Profile and Outcome of Violence Related Injuries of Patients during Civilian Unrest in a Conflict zone

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## Abstract

**Background:** Violence is an intrinsic phenomenon to a class based society which is inherently unequal and oppressive. In the episodes of contemporary violence civilians witness events such as shooting, killing or physical assault and get inadvertently entrapped.

**Methods:** In a hospital based study, during 2010, the hospital received 630 violence related civilian patients of which 393 were admitted.

**Results:** Of the 393 patients admitted 157 (39.94%) had head injuries, 131 (33.33%) limb injuries, 28 (7.12%) chest injuries and 24 (6.10%) abdominal injuries. Forty-three (10.94%) patients had multisystem injuries. Most of the patients had history of physical assault. Of all the injured admitted 159 (40.4%) were having major injuries of which 59 (37.10%) comprised head injuries, 24 (15.09%) chest trauma, 17 (10.69%) abdominal trauma and 51 (32.07%) limb injuries. Of the 393 patients admitted, 324 (82.44%) recovered fully, 10 (2.54%) were disabled, 22 (5.59%) were referred to other hospitals and 28 patients (7.12%) expired. Most of the injured were in the age group 13-24 years.

**Conclusion:** The study was done as part of critical care audit towards capacity building exercise for establishment of comprehensive healthcare delivery infrastructure. Social, economic and public health aspects of violence are discussed in detail.

**Keywords:** Civilian unrest; Violence; Trauma; Pellet; Injury; Outcome

## Introduction

Violence is a phenomenon intrinsic to class based society which are inherently unequal, apprehensive and oppressive. Violence is a dynamic process. Large scale violence may take the form of mass uprising against oppression of dominant class [1]. Such types of violence has recently surged in many conflict zones across the Asian and African continents.

An armed conflict that erupted in Indian Kashmir since 1989 left tens of thousands killed and many more injured [2]. This has now been replaced in recent years by mass street protests which at times become violent. The response from the government has been to control these protests, often resulting in mass casualties. The patterns of injuries encountered by health authorities are different depending upon the type of weapons used by security forces to quell the protesters. Initially conventional bullets were used, followed by rubber bullets, tear gas shells, and the latest introduction was pellet guns.

Civil unrest is a form of protest against major socio-political problems; the severity of the action coincides with public expression(s) of displeasure. Subsequent clashes between security forces and civilian populations can lead to injuries.

The situation in Kashmir can best be described as a "low-intensity conflict". Kashmir witnessed a fresh spate of protest and violence as a result of death of a teenager school boy in the month of May 2010 reportedly at the hands of security forces. What predominates in such conflicts is the use of terror to exert social control, frequently by disrupting the social, economic and cultural relations. Kashmir is not merely a law and order problem but there are social, emotional, political and psychological aspects involved. Traumatic events can have a profound impact on the behavioral and physiological functioning of an individual and society at large.

## The costs of violence

Violence exacts both a human and an economic toll, and costs economies many billions of US dollars each year in health care and lost productivity. Understanding how the complex interplay of individual, relationship, social, cultural and environmental factors is related to violence is one of the important steps in the public health approach to preventing violence.

## Methodology

The present study was conducted for five months from May to September 2010, at Sher-i-Kashmir Institute of Medical Sciences (SKIMS), Srinagar (India), a 700 bedded tertiary care medical centre with a modern Accident and Emergency Department backed by well organized and dedicated diagnostic and therapeutic service. The hospital has four levels of emergency care: Level I (Filter Clinic) acts as a triage area and mostly deals with Ambulatory cases; Level II consists of assessment, evolution and resuscitation wherever necessary, Level III acts as a holding area for emergency admissions up to 24 hours. Level IV houses medical emergencies who need to be observed beyond 24 hours. The department has a 20 bedded Disaster Management ward attached to it for catering to casualties arising out of major incidents etc. It has also a 4 bedded Isolation facility. SKIMS hospital has a dedicated ambulance service. However, Ophthalmic, ENT and

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Orthopedic emergencies are referred to SKIMS affiliated Medical College Hospital. Although fully equipped with all the facilities; the resources of the hospital and the blood stocks get depleted very quickly in such situations and sometimes can't be replenished effectively due to disturbed situation and strict curfew. In such situations the local voluntary and social organizations are of immense help in getting blood donors, volunteers, medicines and surgical disposables available.

Six hundred and thirty consecutive patients who presented to the Emergency Department were included in the study. The injured patients were assessed in relation to age, sex, anatomic location of injury, type of injury sustained (blunt or penetrating), treatment received and final outcome. Patients were initially resuscitated, their apprehensions allayed, thorough clinical examination done especially for neurological and loco motor functions. Scout radiographs were obtained in the areas of visible pellet marks. CT Chest and or abdomen performed were performed in multiple pellet injuries of abdomen & chest. Laparotomy was done in case of pellets injuries with pellets having breached peritoneum as these could cause late perforation, if lodged on gut wall. Ocular injuries were other clinically important bullet related events. The medical and medico-legal records were also consulted for complete information.

## Results

Violence affected 630 patients received during the study period required hospitalization for treatment for 393 (62.38%) patients and emergency outpatients treatment for 237 (37.61%) who were sent home after receiving the treatment. A predominance of injuries was found among younger population. The age group involved mostly was between 13-24 years comprising 204 (51.90%) out of 393 patients admitted (Table 1).

Amongst the 393 patients admitted in SKIMS during the period, 300 (76.33%) were literate and out of 300 literate patients 125 patients were high school students. Of the 393 studied by profession, 180 (45.80%) were students.

Sixteen females (4.1%) were injured due to violence related episodes and one female suffered permanent disability due to paraplegia resulting from spinal cord injury. 62.08% patients were managed conservatively, 23.91% required surgical intervention and, 6.10% needed life support and 7.88% received other treatments (Table 2).

After treatment, 324 (82.44%) recovered fully, 10 (2.54%) were disabled due to different nerve injuries, 22 (5.59%) were referred to other hospitals and 28 (7.12%) expired in the hospital during the course of treatment (Table 3).

Of the 393 patients studied, 138 (35.11%) had bullet injuries, 60 (15.26%) pellet injuries (Figure 1-3), 57 (14.50%) had injuries due to stone pelting, 50 (12.72%) had tear gas shell injuries and 88 (22.34%) had history of assault.

Highest incidence was seen in the month of August 2010. Of the 393 patients admitted, 157 (39.94%) had head injuries, 131 (33.33%) had limb injuries, 28 (7.12%) had chest injury and 24 (6.10%) had abdominal injuries and 43(10.94%) had got multisystem injuries.

Treatment modality	Number of patients N=	Percentage (%)
Conservative	244	62.08
Surgical	94	23.91
Other procedures	31	7.88
Life support	24	6.10

Table 1: Treatment recourse to determine hospital resource N= 393 100.06%.

Outcome	Total number of patients	Percentage
Recovered fully	324	82.44
Recovered partially	9	2.29
Disabled	10	2.54
Expired	28	7.12
Referred to other hospitals	22	5.59

Table 2: Treatment Outcome.

Mode of Injury	Head	Neck	Chest	Abdomen
Bullet	27	6	18	12
Pellet	11	2	3	6
Stone	53	2	1	-
Teargas	26	-	4	4
Assault	40	-	2	2
Total	157	10	28	24

Table 3: Type and mode of injury.

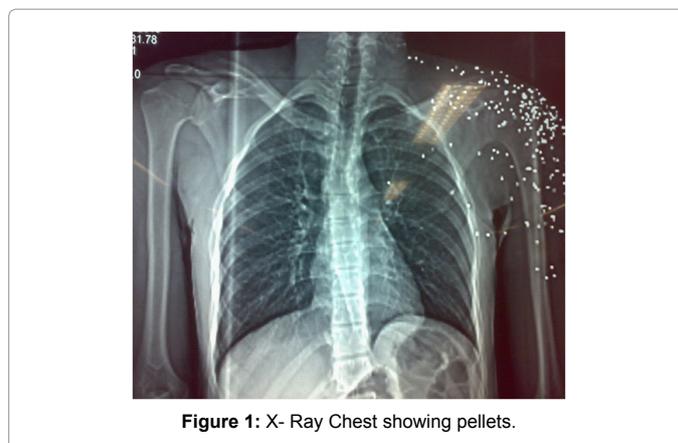


Figure 1: X- Ray Chest showing pellets.



Figure 2: Radiograph of pelvis showing multiple pellets.

Of the 393 patients, 159 (40.44%) were having major clinical findings and underwent different surgical procedures. Fifty-nine patients had received head injuries, of which 38 (64.4%) had cerebral contusions, 11(18.60%) had fracture of skull bones mostly temporal or frontal bone and 10 (16.94%) had mutilated compound fracture skull bones and brain lacerations.

Out of 159 patients, 24 (15.09%) had chest trauma, of which 13 (54.16%) had lung contusions and 11 (45.84%) had hemothorax. Seventeen patients had abdominal trauma, out of which 5 (29.41%) had liver tear and 16 (66.70%) had gut perforations. Fifty-one (32.07%) had limb injuries of which 30 (58.82%) had blood vessel injuries and 21 (41.17%) had fracture long bones.

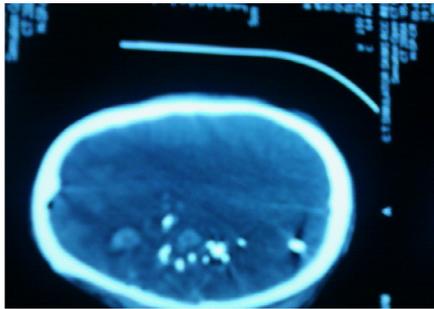


Figure 3: CT head showing multiple bullet & Pellets.

## Discussion

Globally, violence pervades the lives of many people, permeates every aspect of life for those living in conflict zones and touches all of us in some way or other. One cannot stay out of harm's way by closing one's eyes and avoiding dangerous places. Escape is not possible for others. The threat of violence is behind those doors – manifest or veiled.

Many faces of interpersonal, collective and self-directed violence, as well as the settings in which violence occurs are exposed by the human toll of violence that occurs every year throughout the world. Health is seriously compromised where violence persists.

During the last five decades public health has made a significant contribution, particularly with regard to reducing rates infectious diseases and many other major health problems that used to take a huge toll of human lives. Life expectancy has increased, many childhood diseases are controlled and mortality rates have declined particularly the infant, childhood and maternal. However, saving our children from these diseases only is not enough. They have to be saved from falling victim to violence, to the savagery of war and conflict; otherwise it would be a failure of public health. Public health has an important responsibility in the prevention of violence worldwide.

Violence has been part of the human experience in all parts of the world. It is among the leading causes of death worldwide for people aged 15-44 years. It has an adverse effect on the economy as well. It costs of billions of US dollars in annual health care expenditures worldwide. Moreover, it costs billions more in terms of days lost from work, law enforcement and lost investment.

It is very difficult to calculate the human cost in grief and pain as much of it is almost invisible. Some causes of violence are easy to see while others are deeply rooted in the social, cultural and economic fabric of human life.

Public health efforts can prevent violence to a great extent and reduce its impact, in the same way that public health efforts have improved the human health by sustained improvements in hygiene, safe drinking water and immunization. The factors that contribute to violent responses (attitude and behaviour or related to larger social, economic, political and cultural conditions) can be changed by concerted and continued efforts of governments which need a strong political will.

Public health interventions include: Primary prevention (approaches that aim to prevent violence before it occurs), Secondary prevention (approaches that focus on the more immediate responses to violence, such as pre-hospital care, emergency services) and Tertiary prevention (approaches that focus on long-term care in the wake of

violence, such as rehabilitation and reintegration, and attempts to lessen trauma or reduce the long-term disability associated with violence).

Today, the health sector is a key ally in the global response to violence because of its closeness to, and therefore familiarity with the problem. The healthcare professionals dedicate a great amount of time to the victims of violence. Moreover, the health sector has at its disposal information to facilitate research and prevention work as such the sector is uniquely placed to draw attention to the health burden imposed by violence.

Huge database with health sector can be a powerful tool both for advocacy and for action: for creating and implementing an action plan for violence prevention, defining priorities for research on, the causes, consequences, costs and prevention of violence, promoting and strengthening primary prevention responses for victims of violence.

Violence is not inevitable. A lot can be done to address and prevent it. Those whose lives each year are shattered by violence can be safeguarded, and the primary causes of violence tackled to produce a healthier society for all.

## Economic Dimensions

In order to ensure faster and sustainable growth, it is important to identify critical areas where the existing policies and programmes need to be strengthened or even redesigned.

## Empowerment through human development

Development of human resources through education, training and health care is vital for enhancing the quality of life. In the last twenty-three years of turmoil, the functioning of democratic institutions responsible for providing services like education and health care have got a major setback. Hence the quality and quantity of services rendered by such institutions in Kashmir have not been satisfactory compared to other States of India.

The security scenario has gradually improved in the state with the dawn of twenty-first century due to perceptible decline in insurgency and militancy, it is imperative to initiate such policy measures as are critical for providing competent human resource for raising productivity particularly the education and health sectors.

The people have been denied peace and economic security in Kashmir, which their counterparts in the rest of the country enjoyed in the last twenty-three years. The civil unrest, militancy and turmoil have not only jeopardized the functioning of democratic institutions but also disrupted normal life and eroded governance systems, including delivery of essential services to the community. The Government has over time taken various initiatives to ameliorate the sufferings of the people, the outcomes of which may be gauged from the improvement in indicators of development.

Security concerns are amongst the dominant themes in the minds of people living in Kashmir. This owes to the fact that death, injury, destruction of property is the notable features of life here due to conflict, disturbances and turmoil for the last 21 years. Many have suffered tragic incidents of a war-like situation, which by their nature are beyond the endurance of common man. Many are witness to bloodshed that is characteristic of such situation. Thousands of people have lost their lives or limbs, and thousands have been rendered orphans and widows. Scores have disappeared. Moreover, with disruption of development works consequent upon war-like situation, added concerns are unemployment, poverty, relationships etc. A vicious circle of events

has been created comprising torture, disappearances, displacement, killings, ballistic trauma, etc. paralleled by a state of mind wherein grieving, insecurity, oppression, poverty, uncertainties of career and relationships etc. are the major themes. Unemployment, poverty, political oppression is the main factors which predispose to violence.

People of Kashmir feel alienated and ignored. Much of this sentiment can be traced to an aspect of the conflict generally overlooked: economic opportunities lost because of misguided development policies in the region during the last six decades.

The continued restrictions, curfews and shutdowns during these disturbances have dealt a heavy blow to the private enterprise and the tourism industry in Kashmir. The exact estimates of unrest-generated economic loss (that are of high magnitude) are difficult to assess.

It is estimated that globally, over 500,000 injuries are sustained annually from the use of firearms; 300,000 or more relating to those occurring in situations of armed conflict, with the remainder of 200,000 or more being sustained in non-conflict situations [3]. According to reports from the World Health Organization in 2001, these injuries represent roughly a quarter of the estimated 2.3 million deaths which have occurred due to violence; 42% being suicides, 38% homicides, and 26% related to war and armed conflict [3]. Although violence against civilians has become a global phenomenon, Palestine, Afghanistan and Iraq are the conflict regions in West Asia which have witnessed decades of conflict and violence [3]. In contemporary times, a new surge in violence caused by mass uprisings against their governments have surfaced across the globe particularly in Asian and African countries like recent Middle East uprisings. Kashmir has also witness a fresh spate of civil unrest during 2008-2010.

Although there are several causes for ballistic trauma depending upon the situation in which they occur, priorities for healthcare professionals lie in ascertaining the likelihood of survival for the patient based upon damage caused by the bullet on entry- whether a bullet strikes or shatters a bone, and if shattered bone or shrapnel has punctured vital organs or has damaged the spinal cord of the patient. Estimation of the patient's survival is essential. An important determinant is if the future health of the patient dependent upon the severity of the injury so that preventative measures can be approximated, due to the benefits of preventing death or injury outweighing those of a purely treatment-based approach.

Conventional ammunition (bullets, pellets, rubber bullets, and tear gas shells) were used by Police in Kashmir in crowd control during the 2010 civil unrest. There were also stone pelting incidents causing injury to some of the patients. The latest addition was the pellet guns. This leads to a real challenge to the treating physicians. When assessing the likely severity of gunshot wounds, numerous variables that affected management of trauma include: the particular type of weapon used, the caliber of the weapon, the type of the bullet and its propellant charge (i.e. a standard velocity), the range at which the victim was shot (i.e. wounds inflicted), the site of injury and the number of wounds inflicted. Frequently, victims of gunshot wound in Kashmir (during 2010 AD) have been hit several times. An individual shotgun pellet is comparatively small, though victims are usually hit by large numbers of pellets simultaneously; the degree of injury is severe, particularly when the wound is inflicted at close range. The patients present with multiple pellets, sometimes hundreds causing diagnostic difficulties to the treating clinicians. We gradually developed protocols for such patients.

The effects of prolonged turmoil have had an effect on social fabric also. The role of social and voluntary organizations cannot be over

emphasized. Such organizations provide the much needed volunteers, blood donors, medicines, surgical disposables at a very short notice.

Our study shows that young people were injured during violence suggesting that majority of victims were males who were involved in the street protests, most of them in the age group of 13 to 25 years and many were students by profession. Patients admitted in SKIMS were injured on streets in different localities and districts while protesting against security forces. Hamblen and Schnurr conducted studies on violence affected persons in Middle East found that civilian stressors lead to violence on streets [1].

Wright and Kariya [4] in a study found that the mean age of violence victimization is 28 years. They also found that 80 percent of the victims were males clearly resembling to our studies. The leading causes of Traumatic Brain Injury (TBI) - related deaths differed among age groups. Among youths aged 0-19 years, motor-vehicle-related TBIs were the leading cause; among persons aged 20-74 years, firearm-related TBIs were the leading cause; and among persons aged >75 years, fall-related TBIs were the leading cause. Adekoya et al. found highest percentage of deaths in traumatic brain injuries and mostly male and rural residents [5].

Tabish and Yatoo [6] in a retrospective study in 2004 found highest incidence of traumatic brain injuries in age group 21-30 years, 18% were males and most of them were rural.

Tabish and Yatoo in a study in 2004 found that age group 0-10 was the most vulnerable. Males with rural background were mostly involved in traumatic head injuries. Most of the patients (58%) reached to hospital within 3 hours and ambulances (66%) were the mode of transport utilized by the patients referred from peripheries to SKIMS hospital. Average death rate was 6.4 % of the total traumatic brain injury patients [6].

Sivarajasingam and Shepherd in a study found that 45% patients came from the age group of 18-30 years [7]. The findings of our study resembled the previous studies with respect to the age group violence.

Tabish et al. [8] in a study in 2004 found that some patients who expired were brought in a critical condition to SKIMS, either in coma or in shock. Delay in transporting the patients to hospital, lack of Emergency Medical Services System, non availability of First Aid, loss of a Golden Hour, loss of blood, improper transportation, etc were the factors that were beyond the control of doctors at SKIMS thus resulting in death of some patients. However, once the patients were received at SKIMS, prompt and quality care was provided to them by the multidisciplinary teams [8].

Even non-fatal wounds caused by gunshot, teargas and pellets frequently have severe and long-lasting effects, including disfigurement and/or permanent disability. All such wounds are surgical emergencies which require immediate hospital treatment.

The immediate damaging effects of the missile on the victims, observed in the current study, include: loss of blood and the hypovolemic shock. In a few cases, immediate effects resulted in death due to exsanguinations, hypoxia caused by pneumothorax, heart failure and brain damage. Non-fatal gunshot wounds resulted in serious disability in few cases.

The essential trauma care facilities should be available to people to assure optimal care of the injured patient in all the Districts, from Primary Health Centers, to District Hospitals, to provincial Teaching Hospitals, to Tertiary care medical centers. There is also a strong need to promote standards including training, quality improvement and

trauma team organization. The mechanisms for needs assessment that helps to define priorities for affordable and sustainable improvements in trauma care need to be devised.

Decreasing the burden of injuries is among the main challenges for health care delivery system in the twenty-first century. To promote low-cost improvements in injury care, in both the pre-hospital and hospital-based arenas needs serious consideration of health planners and policy-makers. The benefit of such improvement is evidenced by the gross disparities in outcome between low- and middle income countries on one hand and high-income countries on the other. Persons with life-threatening but salvageable injuries are more likely to die or develop disability if proper trauma care is not available.

The essential trauma care facilities can realistically be made available in all parts of the State. The resources that would be necessary to assure such care include human resources (staffing and training) and physical resources (infrastructure, equipment and supplies). The improvements in organization and planning can result in improvements in trauma treatment services and hence saving scores of lives and limbs and prevention or reducing the consequent disability.

## Conclusion

Unemployment, poverty and political oppression are the main factors which predispose to violence. Males are more vulnerable. The age group between 13-24 years is the period when young people face the realities of life and strive to make their own political existence. During young adulthood, violence as well as other behaviors is often given heightened expression. Both quantitative as well as qualitative information is required to plan for intervention and construct policy. Complications from head injuries are the single largest cause of morbidity and mortality in patients who reach hospital alive.

The establishment of physical infrastructure is necessarily crucial. There has to be a rational policy for evacuation of injured as sometimes even the health professionals and hospital vehicles (including

ambulances) are not allowed in these areas for evacuation. The role of social and voluntary organizations in such situations is of paramount importance. Reduction in morbidity and mortality associated with severe head injury has been achieved with aggressive management protocols at SKIMS.

Solving the problems of poverty, unemployment and other political aspirations can go a long way in preventing the violence and civil unrest in societies. Commitment of violence prevention and peace building requires proper assessment of all forms of violence and its uses and impact.

## Author Contributions

Prof. S. A. Tabish: study design, data analysis, data interpretation, writing; Dr. Rauf Wani: Figures, literature search; Dr. Shiekh M A: Data Collection and data interpretation; Dr. Natasha Thakur: Figures; Dr. Yatoo G H: Data Analysis; Dr. Wani S Nabi: Literature search.

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