A

Retrospective Study

on

Political Conflict Victims

Treated in TUTH & BPH

(from 2052 to 2059 BS)

Mode and severity of injury, their treatment and its outcome

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Abstract:

Since 1996 (2052 BS) TUTH and BPH encountered unusual increase in cases of political conflict victims. Total of 806 cases (218 general citizens and 588 police force) attending the hospitals were studied retrospectively. Mid-west and central regions of Nepal were mostly affected by the conflict. Exclusively males of active age group were victim. Mainly farmers were victimized persistently through-out the insurgency.

Generally violence was inflicted on people in solitude while they were at home while majority of police force were on duty when they got injured. Mode of injury was significantly different. Blunt and sharp-cut injury was the main mode of injury among general people (71%), and that of police force was blast and gunshot injury (93%). Limbs, mainly the lower limbs were the most affected part of injury. Civilians had more severe injury with more than two parts involvement. Though the incidence of bone fracture was significantly high in general people, cases with grade II and III open fracture were significantly more among the police. Ratio of critical area wound to limbs injury was 0.78, higher than other studies. Evacuation of cases from the site of injury and their transport was earlier in police than general citizen. First aid treatment was better among the general people (76.6%) compared to police (49.5%). Condition of the cases at the time of discharge was better among the police. Similarly, functional outcome was also better among the police.

The study suggests that mode and severity of injury, involvement of parts, outcomes of treatment are different among the general citizen and police force.

Introduction

Acts of war and terrorism are increasingly prevalent in contemporary society. In 1993 alone, there were at least 30 conflicts ongoing through out the world. In surface the cause appears to be ideology, politics, or ethnicity. In the course of history, weaponry has become more efficient, accurate, and powerful, resulting in more devastation and loss of human life. The violence of war and terrorism often results in cascades of negative life events including loss of lives, physical & mental trauma, loss of organs, disability, displacement and drastic changes in daily routine and community values. Mortality from wars has reached more than a 100 million since the early 1990s. A comparable number have died indirectly from famine and disease associated with the disruption of agriculture and infrastructure from wars. Since 1945, 66-75% of mortality victims have been civilians, of whom 15 million have been women and children. Global prevalence of locomotor disability was 23/1000. War-related injuries were the leading cause of disability, affecting almost exclusively adult males (1,2,3,4 ,6,7,8,9,10)

After about five years of restoration of democracy one political group of Nepal undertook the path of armed revolution. Since then there is a state of civil war in the country costing lives of general civilians, security forces of the country, political party workers, civil servants and militants of the revolutionary group. Number of victims killed during last seven years (13 Feb 1996 to 15 Jan 2004) is 8742 and they belong to different occupation. During this period 3.07 persons lost their life per day (5). It is presumed that the number of victims injured or wounded in such combat

situation should be much more than killed. There has been no proper recording and reporting of wounded political conflict victims. Management of the war victims is different from the civilian injuries. Proper first-aid management, timely evacuation from the site of injury, proper management of the combat injuries at the local hospital, its tertiary care and rehabilitation are commonly raised issues in connection to prognosis of these war wounded victims.

The general health care delivery system of Nepal is so poor that it is difficult to cope with the common infectious diseases, malnutrition etc. Addition of unwanted manmade health problems of much more severity is a big burden to the health service and the nation.

In the initial phase of the insurgency the injuries were relatively smaller like fracture of single bones, soft tissue injury etc. and were limited to certain parts of mid-west of Nepal. With the passing time the number of physical assault cases with poly-trauma has increased with more severe injuries from almost all geographical areas of Nepal. Bilateral fierce combat between security forces and the revolutionary group in later days has increased the numbers of blast injury cases in the form of mass casualty. Mode of injury thus is so bizarre that it becomes sometimes very difficult to classify the wound in a conventional way.

We studied political conflict victim cases from 1996 to 2003 April (2052 to 2059 BS) attending Tribhuvan University Teaching Hospital (TUTH) and Birendra Police Hospital (BPH) Maharajgunj Kathmandu Nepal to find out the mode of trauma, severity of the injuries, treatment provided at the hospitals, and outcome of the treatment.

Methodology

Data Collection: A format (Annex 1) was developed to collect the data from hospital files of Tribhuvan University Teaching Hospital (TUTH) and Birendra Police Hospitals (BPH). These hospitals are the tertiary level hospitals at Kathmandu. A prior permission was taken from the authorities of both the hospitals. As the big number of victims are from police force they are partly treated in either of these hospitals and are referred to and fro till the rehabilitation. This was the reason to select these hospitals for the study.

The data was collected from the MS residents and house officers of department of Orthopaedics, Tribhuvan University Teaching Hospital. A short training was provided to them. After a pretest some modifications were made in the format.
Available file of victims attending these hospitals from 1996 February (2052 Falgun) to 2003 April (2059 Chaitra) were included in the study. Cases brought dead or death in the emergency room were not included in the study. All cases entered in the registers of both the hospitals were included in the study and available information was gathered.

Information among the police force and other general people were analyzed and copmpared. The collected data was tabulated and analyzed statistically. All the *p* values to see significance difference, Chi Square test of different degrees of freedom have been used. For the significance the *p* value is 0.05.

Results

Total number of cases attended, admitted and managed found in the register of both the hospitals is 806 (police force = 588 & common citizens = 218). The injured general citizens were exclusively brought to TUTH and were treated in the hospital. However, the injured from police force were brought to Emergency departments of TUTH or BPH. Some of the cases landed in the BPH were referred to TUTH for further management and after definitive management they were referred back to BPH for rehabilitation. Cases from police force initially treated at TUTH or Birendra Military Hospital, Chauni, Kathmandu were referred to BPH for rehabilitation. According to need, injured were referred to and fro between TUTH and BPH. This number of victims may be only the tip of iceberg as many cases would have been managed locally or some may not have access to Kathmandu.

Year of injury and Ages of the injured:

In general, majority of the victims were of active age group, 21 to 30 years of age. Among the injured police 65.1% were of this age group. Twenty one to forty years of age is considered to be the most active stage of a human being. More than 92% of the cases from police group were of active age group. Age of the injured general people ranged from 5 years toddler to 80 years elderly. More than 54% of them were of active age group. After 30 years of age a person is established, and is professionally and economically active till the age of 60 years. About 60% of the victimized general citizens belonged to 31 to 60 years of age. Number of injured children of less than 15

years of age is about 5% and senior citizens of more than 60 years is about 6% and, are innocent victims. About 5% of he victims belonged to 16 to 20 years of age and were probably school students. (Table 1., Diagram 1a, 1b)

Table 1: Age wise distribution of the victims among general citizens and police

Age	General citizens	Police force
<15 years	10 (4.6%)	1 (0.2%)
16 – 20 years	10 (4.6%)	22 (3.7%)
21 – 30 years	56 (25.7%)	383 (65.1%)
31 – 40 years	63 (28.9%)	159 (27.0%)
41 – 50 years	35 (16.0%)	22 (3.7%)
51 – 60 years	31 (14.2%)	1 (0.2%)
61 – 70 years	11 (5.0%)	0
> 71 years	2 (0.9%)	0
Total	**218**	**588**

Since the start of political conflicts in Nepal in 2052 BS (1996) the number of victims is gradually increasing. Table 2 & 3 shows year wise number of cases attending these hospitals. During the first four years of insurgency number of victims was relatively more among the general citizens than the police force. However, in later years, number of police force causality increased without decline in number of casualties among general citizens. More than 61% of the general cases were victimized during 2058 and 2059 BS only. Among the police cases more than 51% were injured during 2057 and 2058 BS. Incidence of conflict victim cases coming to TUTH and BPH in 2057 BS is quite

different. In this year general people were least victimized (4.6%). However, majority of the police force was injured in the year (27.6%). These difference in distribution of cases by age group in general citizen and police force was statistically highly significant (p=0.0000). Year wise difference in distribution of victims among the general people and police force was also statistically strongly significant (p=0.0000).

Table 2: Age and year of injury among the general citizens

Age/Year	2052	2053	2054	2055	2056	2057	2058	2059	Total
<15 yrs	0	0	0	1	0	3	1	5	**10**
16–20yrs	1	0	2	0	2	1	3	1	**10**
21–30yrs	3	3	7	5	8	1	14	15	**56**
31–40yrs	6	2	6	4	7	1	21	16	**63**
41–50yrs	4	2	0	2	2	3	11	11	**35**
51–60yrs	0	0	1	1	2	0	17	10	**31**
61–70yrs	2	0	0	0	1	1	4	3	**11**
> 71 yrs	0	0	0	0	0	0	2	0	**2**
Total	**16 (7.3%)**	**7 (3.2%)**	**16 (7.3%)**	**13 (6.0%)**	**22 (10.0%)**	**10 (4.6%)**	**73 (33.5%)**	**61 (28.0%)**	**218**

Table 3: Age and year of injury among the police force

Age/Year	2052	2053	2054	2055	2056	2057	2058	2059	Total
<15 yrs	0	0	0	0	0	0	1	0	**1**
16–20yrs	0	0	0	0	8	5	3	6	**22**
21–30yrs	1	1	13	28	91	104	89	56	**383**
31–40yrs	0	0	4	12	24	48	44	27	**159**
41–50yrs	0	0	4	4	3	5	2	4	**22**
51–60yrs	0	0	1	1	2	0	17	10	**31**
61–70yrs	0	0	0	0	0	0	1	0	**1**
> 71 yrs	0	0	0	0	0	0	0	0	**0**
Total	**1 (0.2%)**	**1 (0.2%)**	**21 (3.6%)**	**44 (7.5%)**	**126 (21.4%)**	**162 (27.6%)**	**140 (23.8%)**	**93 (15.8%)**	**588**

Diagram: 1a - **Age wise distribution of the victims among general citizens**

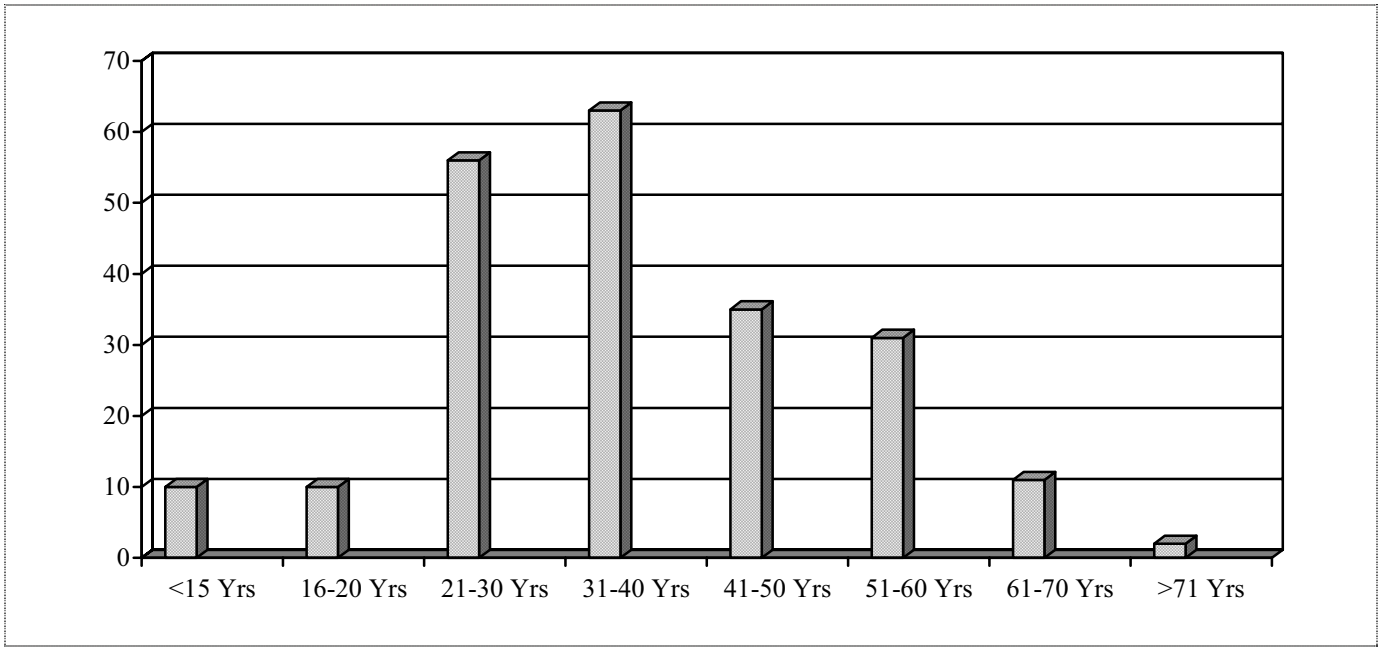
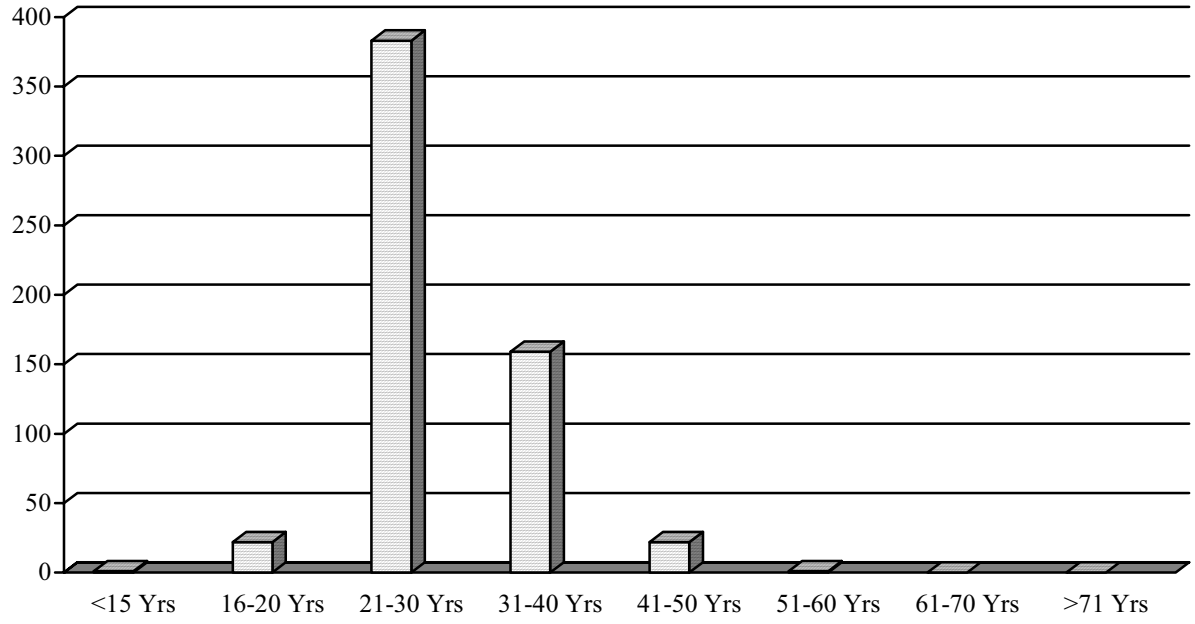


Diagram 1b - Age wise distribution of the victims among Police Force



Gender distribution of the victims

Among the police force all but one victim was male. Among the general citizens 8.5% were female victims rest 91.5% were male. The male female ration was 39.3:1.

Occupation of the injured was noted among the general peoples from the hospital records. In case of police force rank of the injured was noted.

Table 4 shows that farmers, politicians, teachers and students are mostly victimized. Majority of the victims were farmer (55%). Though there is some drop in the relative incidence during 2055 to 2057 BS farmers are continuously being victimized from the initial years to date. Number of businessman and government service holder is less and they were victimized only during the later years. Some of the individuals had at least two occupations like farmer and politics.

Table 4: Occupation of the injured (general citizens)

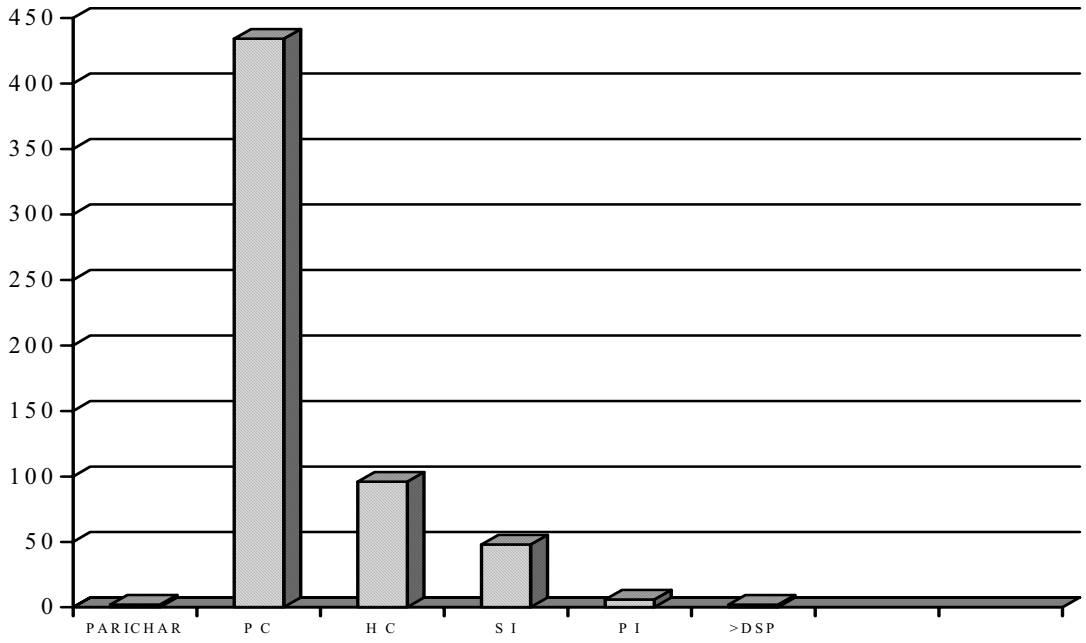
Year/ Occupation	2052	2053	2054	2055	2056	2057	2058	2059	Total
Farmer	14	7	14	8	8	5	34	37	**127**
Politics	0	3	4	3	2	0	10	5	**27**
Business	0	0	0	0	0	0	4	3	**7**
Teacher	1	0	2	2	3	0	12	5	**25**
Students	0	0	1	2	4	4	5	7	**23**
H-wives	0	0	1	0	0	0	4	1	**6**
G. service	0	0	0	0	0	0	2	2	**4**
Others	1	0	0	0	5	1	1	4	**12**
Total	**16**	**10**	**22**	**15**	**22**	**10**	**72**	**64**	**231**

Others include travelers, tailor master, laborer, health worker and social worker.

Table 5: Rank of the injured (Police)

Year/Rank	2052	2053	2054	2055	2056	2057	2058	2059	Total
Parichar	0	0	0	0	0	0	2	0	**2**
P C	0	1	16	29	110	127	94	57	**434**
H C	0	0	2	11	13	20	32	18	**96**
S I	0	0	3	3	2	14	10	16	**48**
P I	1	0	0	1	1	1	1	1	**6**
> DSP	0	0	0	0	0	0	1	1	**2**
Total	**1**	**1**	**21**	**44**	**126**	**162**	**140**	**93**	**588**

Diagram 4 - Rank of the injured Police



Parichar: kitchen helper, PC: police constable, HC: head constable, SI: sub inspector, PI: police inspector, >DSP: district superintendent of police & higher.

Majority (73.8%) of the victims were police constable, the lowest rank police. Table 5 and diagram 4 shows that number of injury cases is less among the higher rank police.

District wise distribution of the cases:

On the basis of injured cases attending TUTH and BPH Kathmandu the most conflict affected districts are Rolpa, Rukum, Jajarkot, Salyan, Acham, Pyuthan, Dolpa, Kailali, Dang, Surkhet, Arghakhanchi, Lamjung, Tanahu, Gorkha, Nuwakot, Kavre, Sindhupalchok, Sindhuli, Ramechap, Dolakha, Sarlahi and Solukhunbu. Districts like Kalikot, Dailekha, Bardia, Banke, Gulmi, Baglung, Chitwan, Dadhing, Makawanpur, Kathmandu, Siraha, Sunsari and Taplejung were moderately affected. There were no cases from Bajhang, Humla, Mustang, Manang, Myagdi, Mahottari and Ilam. Other districts were least affected (Table 6).

General Citizens were victimized mostly in Rolpa, Kailali, Lamjung, Gorkha, Nuwakot, Taplejung, Rukum, Tanahu, Chitwan, Sindhupalchok and Siraha. Large number of police force was injured in places where police posts and training center of revels were attacked.

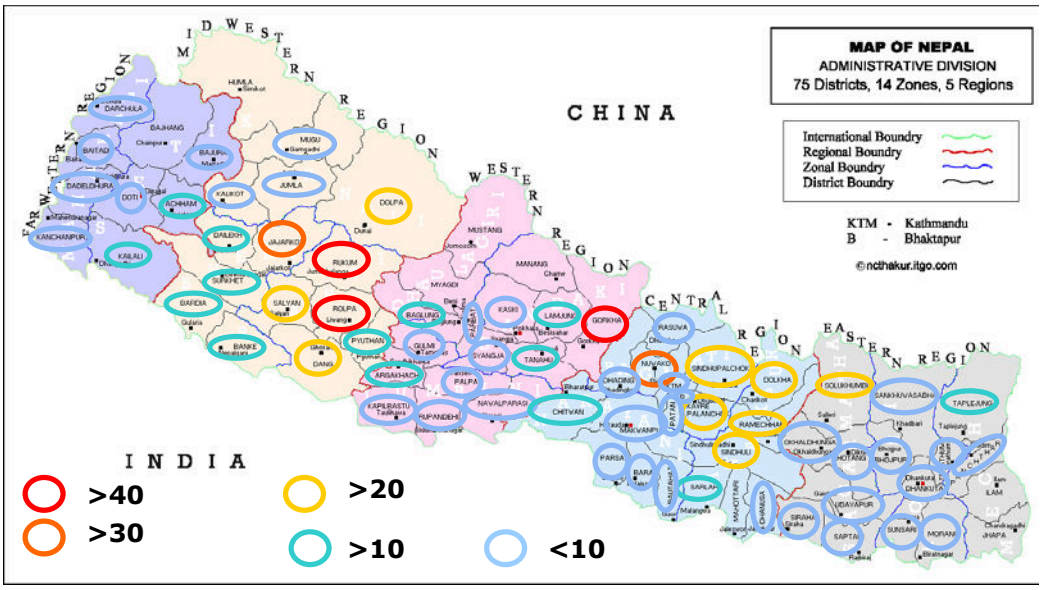
Table 6: District wise distribution of the cases

	General people	Police force	Total
Rolpa	23	24	47
Rukum	9	37	46
Jajarkot	3	34	37
Salyan	2	19	21
Acham	2	14	16
Pyuthan	3	13	16
Kalikot	2	5	7
Dolpa	0	26	26
Bajura	2	0	2
Kanchanpur	0	1	1
Kailali	12	6	18
Jumla	0	5	5
Dadeldhura	0	7	7
Doti	0	2	2
Darchula	0	5	5
Dang	4	24	28
Dailekh	2	9	11
Baitadi	0	1	1
Bardiya	4	6	10
Banke	2	9	11
Mugu	0	1	1

Surkhet	2	13	15
Gulmi	4	4	8
Palpa	0	1	1
Syanja	3	2	5
Kaski	1	1	2
Lamjung	12	3	15
Tanahu	9	9	18
Kapilbastu	3	0	3
Nawalparasi	3	2	5
Rupandehi	0	4	4
Baglung	4	6	10
Parbat	2	2	2
Gorkha	11	44	55
Nuwakot	14	23	37
Chitwan	9	4	13
Dhading	0	8	8
Makawanpur	4	5	9
Kathmandu	3	6	9
Lalitpur	2	2	4
Bhaktapur	0	1	1
Kavre	4	18	22
Rasuwa	0	1	1
Sindhupalchok	8	16	24

Dolakha	2	27	29
Sindhuli	4	24	28
Ramechap	4	17	21
Rautahat	3	1	4
Sarlahi	2	13	15
Dhanusha	3	1	4
Bara	0	5	5
Parsa	3	2	5
Siraha	6	1	7
Okhaldhunga	2	4	6
Solukhunbu	3	21	24
Khotang	3	1	4
Udayapur	0	2	2
Saptari	0	3	3
Sunsari	0	8	8
Dhankuta	0	1	1
Morang	0	3	3
Bhojpur	1	3	4
Samkhuwasabha	1	2	3
Taplejung	10	2	12
Terathum	0	2	2
Panchthar	1	3	4
Jhapa	0	2	2

Geographic distribution of the cases coming from



Year and region wise distribution of the injured: The insurgency was declared and started from middle-west region of Nepal in 2052 BS. Hence, the majority (34.5%) of the victims were from the region. During initial two years it was only the middle-west region affected and most of the victims were general people. The figures show that conflict is persistent in the region. Police force was injured more (37.8%) compared to the general people (25.7%) in the region. Second most affected is central region (29.6%). Number of victims among the general people was more from the central region (29.4%). Almost equal percentage of police force was injured in the central region (29.8%). General people were almost equally victimized in the western region (25.2%). However, number of injured police force was relatively less (16.3%) in western region. This difference was significant (p=0.0055). Though close to the middle-west, far-west region was least affected by the conflict (6.4%) and was affected only during later years. Eastern region of Nepal was second least affected (10.7%). General citizens were slightly more injured (12.4%) than police (10.0%).

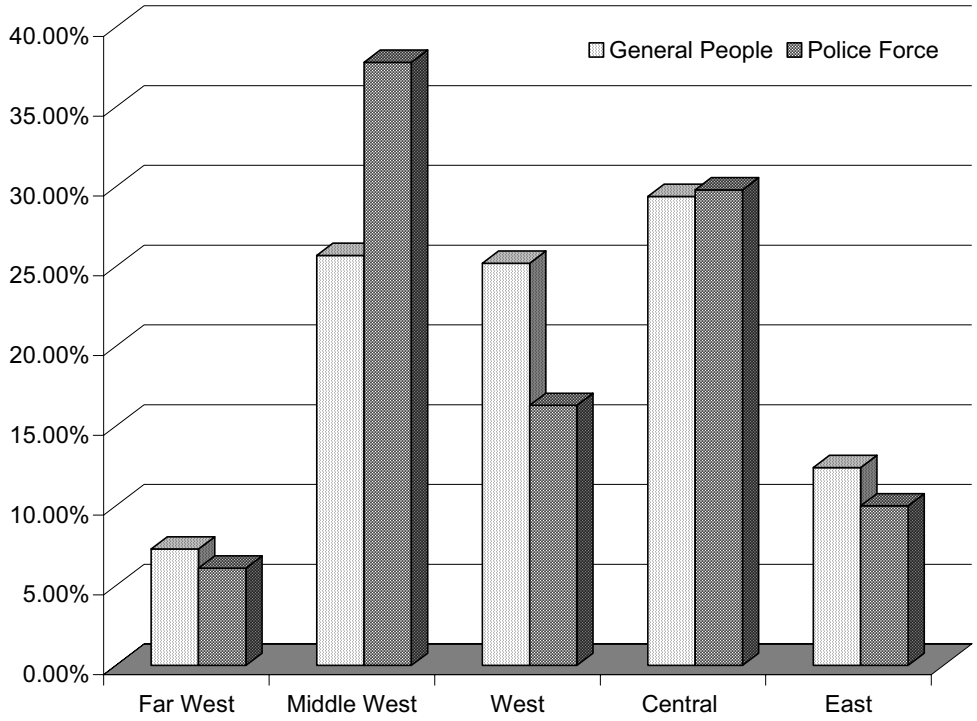
Table 7: ***Year and region wise distribution of the injured (general people)***

Region / Year	**Far West**	**Middle West**	**West**	**Central**	**East**	**Total**
2052		15	1			16
2053		7				7
2054		6		8	2	16
2055		5	5	2	1	13
2056	2	3	7	10		22
2057	1	2	4	3		10
2058	6	10	31	12	14	73
2059	7	8	7	29	10	61
Total	**16 (7.3%)**	**56 (25.7%)**	**55 (25.2%)**	**64 (29.4%)**	**27 (12.4%)**	**218**

Table 8: Year and region wise distribution of the injured (police force)

Region/ Year	Far West	Middle West	West	Central	East	Total
2052		1				1
2053		1				1
2054	2	11	3	1	4	21
2055	1	20	6	13	4	44
2056	3	72	28	12	11	126
2057	1	61	19	72	9	162
2058	22	34	14	49	21	140
2059	7	22	26	28	10	93
Total	**36 (6.1%)**	**222 (37.8%)**	**96 (16.3%)**	**175 (29.8%)**	**59 (10.0%)**	**588**

Diagram 5 - Region wise distribution of the injured



Activity at the time of injury: Activity at the time of injury of each individual was noted. Among the general people it was available only in 206 files. Out of them 163 (79.1%) were at their home sleeping, taking rest or involved in household works. Twenty seven (13.1%) were at work or on the way to work, like teachers teaching at the school or going to school. Eight of them were traveling in bus at the time of injury. One student was injured during student protest and seven children were innocently victimized while playing.

This information was available in 508 files of injured police. Ninety six percent of the injured police were on duty, patrolling, and duties in the post or were at the police post at the time of injury. Fourteen (2.7%) police people were at home after duty time or were at

home on leave. Three of them were traveling and another 3 were accidentally injured while cleaning their weapon or carrying explosives bomb.

***Singly injured or Part of mass casualty*:** Most (84.9%) of the injured general people were singly victimized. They were injured at home or were abducted and victimized. Thirty three (15.1%) were injured as a part of mass casualty. This information was available in 521 files of police. Out of them 90.4% were injured as a part of mass casualty and rest (9.6%) were singly victimized. Those injured singly were either on duty, or at home after duty or on leave. The difference is statistically strongly significant P=0.0000.

***Time of injury*:** Time of injury was noted only in 358 police files and 172 general people files. It was noted whether the injury occurred during morning (5 am to 10 am), day time (10 am to 6 pm) or in the night (6 pm to 5 am). In both the group majority of incidences happened during night time, and it was slightly more among the general people (68%) than in police force (60%). In one forth of cases it happened in the day time. In 10% of cases the injury took place in the morning time. There was no significant difference in time of injury between both the groups (p=0.11867)

Diagram 6 a - TIME OF INJURY (General People)

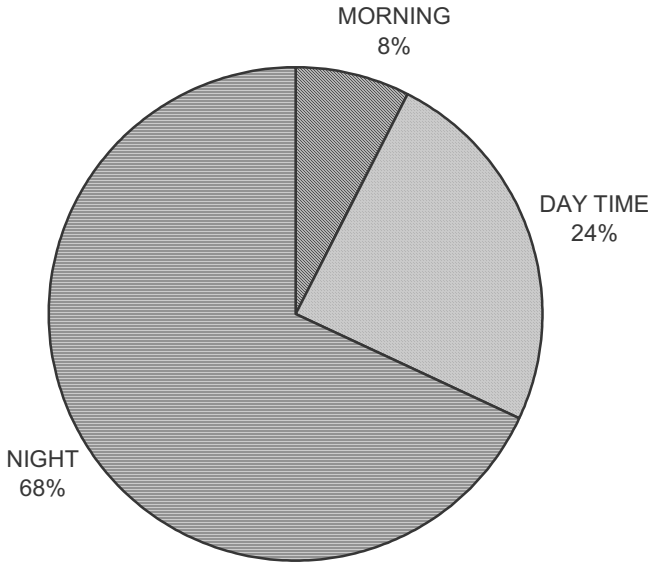
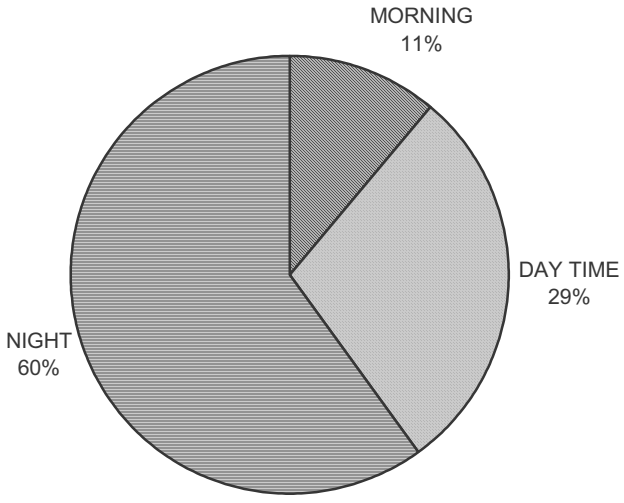


Diagram 6 b - TIME OF INJURY (POLICE FORCE)



***Mode of injury*:** Victims were injured with different mode of injuries and types of weapons. Some of them were victimized with more than one weapon. Common modes of injury were blunt, sharp-cut, gunshot and blast injuries. Blunt injury was the commonest mode of injury (52.9%) among the general people. Blunt injuries were like direct punch, boots, hyper-extension injuries to the joints, sticks, back of axes, log, stones, heavy objects rolled over limbs against hard surface etc. About 18% had sharp-cut and equal number of victims had gunshot injury. Twenty six (10.7%) of general people were injured by blast injuries, bombing, mine blast, missed and un-blasted bombs. Contrast to the general people 60% of the injured police had blast injury, followed by gunshot injury (33.6%). Blunt (3.8%) and sharp-cut (1.8%) injuries were less common among the injured police. *p* value of $p = 0.00000$ shows that difference in the mode of injury among the police force and general people was statistically strongly significant.

Diagram 7 - Mode of injury

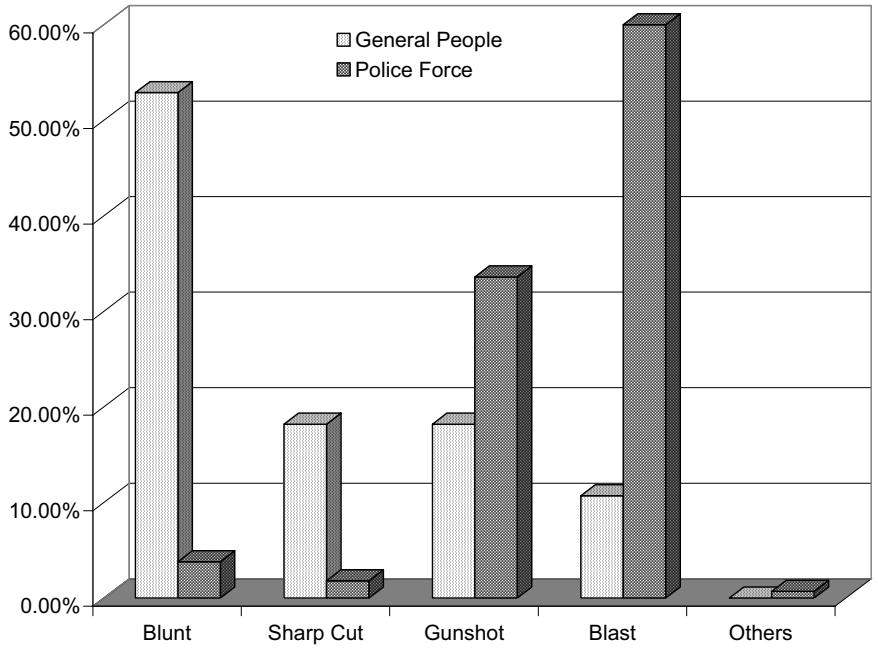


Table 10a: Mode of injury (general people)

Year/ Mode	2052	2053	2054	2055	2056	2057	2058	2059	Total (242)
Blunt	9	1	9	6	12	6	52	33	128 (52.9%)
Sharp-cut	6	1	1	3	7	1	17	8	44 (18.2%)
Gunshot	2	6	3	5	1	2	13	12	44 (18.2%)
Blast	1	0	3	1	4	2	2	13	26 (10.7%)

Table 10b: Mode of injury (police force)

Year/ Mode	2052	2053	2054	2055	2056	2057	2058	2059	Total (548)
Blunt	0	0	2	2	2	1	11	3	**21 (3.8%)**
Sharp-cut	0	0	0	3	2	2	3	0	**10 (1.8%)**
Gunshot	1	1	13	29	26	43	35	36	**184 (33.6%)**
Blast	0	0	6	10	98	66	94	55	**329 (60.0%)**
Others	0	0	0	0	2	1	1	0	**4 (0.7%)**

***Parts involved*:** Injured parts of the body were noted to evaluate the severity of injury. Some individuals had more than two injured parts of the body. Broadly, head with face and neck, chest, abdomen & pelvic, back & spine, upper limb with hand, lower limb with

foot, eye, ear injuries and post trauma stress disorder were grouped among the general and police people. Soft tissue, bony and internal organ injury is included in the part injured.

In majority (55.9%) of the cases limbs, upper and lower, were injured. Involvement of lower limb was relatively more frequent among the general people (39%) than police force (27.4%). Head injury, soft tissue and intra-cranial, was in 16.4% cases. Chest injury was found in 8.9% cases which includes chest wall injury, ribs fracture, lung contusion, lung perforation and hemothorax. Similarly abdominal wall injury, perforating abdominal and pelvic injury was in 6.6% and soft tissue injury with or without spinal fracture was in 4.6% of the cases. External and internal perforating eye injury was found in 3.7% of cases. Hearing loss due to blast injury and external ear injury was noted in 3.5% cases. Post trauma stress disorder (PTSD) was noted only in 5 victims from general people and 1 in police it is presumed to be more common in both the population.

Parts	**General people**	**Police force**	**Total (%)**
Head	52	150	202 (16.4)
Chest	33	77	110 (8.9)
Abdomen/ pelvic	26	55	81 (6.6)
Upper limb	78	230	308 (25.0)
Lower limb	144	236	380 (30.9)
Back and spine	12	45	57 (4.6)
Eye	12	33	45 (3.7)
Ear	7	36	43 (3.5)
Post trauma stress	5	1	6 (0.5)

Number of parts involved was also noted. Cases were grouped into four categories, with 1 part injured, with 2 parts injured, with 3 parts injured and with more than 3 parts injured. Again soft tissue, bony and internal organ involvement is not separated in this grouping.

Number of organs injured and severity of injury depends on the mode of injury. It was found that in gunshot injury usually one or two parts of body were involved. Multiple part injuries were found in blunt and blast injury. One part injury was more common among the police force (47.4%) compared to general people (26.1%). Three parts and more than three parts injuries were more common among the general injured people. It was statistically strongly significant (p=0.0000).

Diagram 8 a - No. of parts involved (General People)

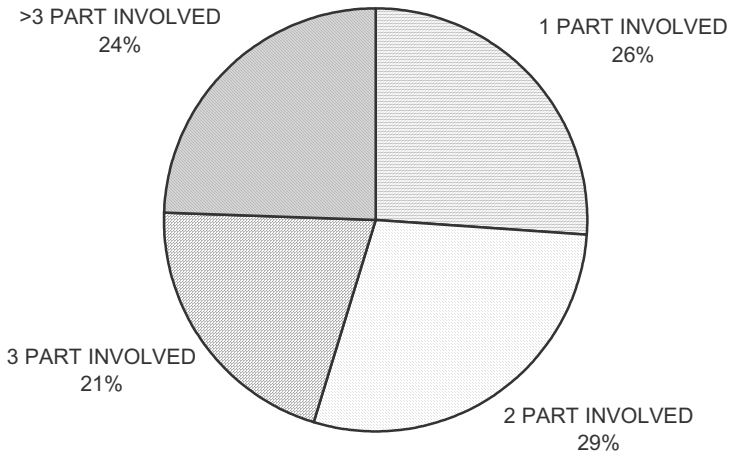
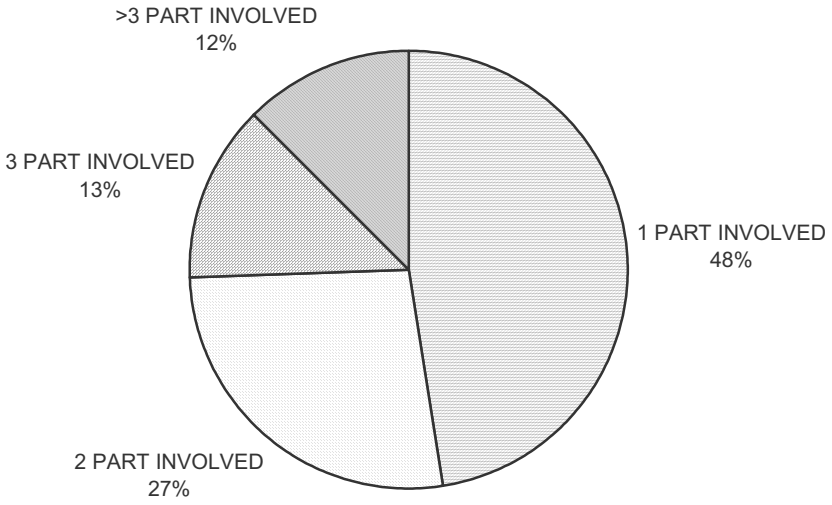


Diagram 8 b - No. of parts involved (Police Force)



***Diagnosis with severity of the injury*:** The diagnosis made in the hospitals was noted and grouped into, soft tissue injury, close fracture of limb bones, open fracture of limb bones with three grades (Gustilo & Anderson), head injury, chest injury, abdominal & pelvic injury, eye injury, ear injury, neurovascular injury, traumatic amputation, post trauma stress disorder etc. Fracture dislocations of the joints are included in the close and open fracture accordingly. Soft tissue injury includes all tendon injuries, scalp injury, chest wall injury, abdominal wall injury, electric and blast burn, soft tissue injuries of the back and limbs. Eye injury includes perforating injuries to the eye. Ear injury includes sensory neural hearing loss, tympanic membrane perforation etc. Case with multiple injuries had more than one diagnosis.

Table 10 show the year-wise type of injury (diagnosis) among the general people and police force. Incidence of soft tissue injury was more in police force (51.8%) compared to that of in general people (28%) and it was statistically weakly significant (*p=0.0311)*. Fracture of extremity bones, close and open, was more among the injured general people than in police force. Open fracture is said to have poor prognosis that depends on its grades, grade III having worst prognosis. Incidence of close fracture and different grades of open fracture in general people was 14.3% and 31.2% respectively which is much higher than in police force (close fracture 2.6% and open fracture 18.1%). This difference was strongly significant (*p*=0.0000). Trauma by blunt objects (crushing of limb between two hard objects) was one of the main mode of injury in general people and in 48 opens fracture cases there were multiple punctured wound, soft tissue injury and bad communition in the bone. In these cases fractured bone seemed well covered by skin and muscles at emergency room but during hospital stay soft tissues and skin necrosed and sloughed out exposing the bone. Thus, diagnosis of grade I open fracture at the time of admission was changed to grade II or III during hospital stay. Out of 138 open fractures general cases 31.2%, 52.2% and 16.7% had grade I, II and III open fractures respectively. Compared to this out of 134 cases in police force 8.2%, 23.9% and 67.9% had grade I, II and III open fractures respectively. The higher incidence of grade II and III cases among the police force was weakly significant (*p=0.0430*).

Incidence of head injury among the general and police force was 3.8% and 3.1% respectively and it was weakly significant (*p*=0.0240). Chest injury (4.5%) and abdominal injury (5.5%) was more common in police and was due to penetrating bullet injuries. But it was not significantly different. Peripheral neurovascular injury was more

among the general people (6.8%) than among the police force (2.3%). Larger number of neurovascular injuries among the general people was statistically significant (p=0.0000). Surprisingly, relative number of traumatic amputation of extremities was more among the general people (1.8%) compared to police (0.9%) but it was not statistically significant. Only five cases were diagnosed as PTSD in general group and one in police force. Eye and ear injury was found to be insignificantly more among the police force. Blast injury was common mode of injury among the police force causing sensory neural hearing loss, tympanic membrane rupture and splinter injuries to eye. Uncommon injury like parotid fistula and mandible fracture was included in the soft tissue injury and close fracture of bone. Two general cases with multiple soft tissue injuries and open fracture developed crush syndrome leading to acute renal failure. Spinal fracture cases were also insignificantly more among the police force (1.6%) compared to general people (0.5%).

Table 11a: Type of injury in years (general people)

Year/ Diagnosis	2052	2053	2054	2055	2056	2057	2058	2059	Total 442 (%)
Soft Tissue	13	2	4	4	19	7	36	38	**124(28.0)**
Close #	9	0	1	1	3	4	30	15	**63(14.3)**
Open # I	5	0	0	0	8	2	17	11	**43**
II	7	0	5	2	4	3	33	18	**72**
III	1	1	2	1	0	0	6	12	**23**
									138(31.2)
Head	0	0	2	1	2	0	7	5	**17(3.8)**
Chest	0	0	0	4	0	0	7	7	**18(4.0)**
Abdomen	1	3	0	2	1	3	2	4	**16(3.6)**
Spine	0	0	0	0	0	0	2	0	**2(0.5)**
Eye	1	1	0	1	1	0	3	5	**12(2.7)**
Ear	0	1	2	0	1	1	1	1	**7(1.6)**
Neurovascular	1	0	0	1	2	0	9	17	**30(6.8)**
Amputation	2	0	1	0	1	1	2	1	**8(1.8)**
PTSD	0	0	0	0	0	0	5	0	**5(1.1)**
ARF	0	0	0	0	0	0	0	2	**2(0.5)**

Table 11b: Type of injury in years (police force)

Year/ Diagnosis	2052	2053	2054	2055	2056	2057	2058	2059	Total 739(%)
Soft Tissue	1	0	13	31	91	74	107	66	**383(51.8)**
Close #	0	0	1	2	3	1	2	10	**19 (2.6)**
Open # I	0	0	0	0	0	1	5	5	**11**
II	0	0	0	2	8	6	8	8	**32**
III	0	0	4	9	23	16	18	21	**91**
									134(18.1)
Head	0	0	1	1	5	2	9	5	**23 (3.1)**
Chest	0	0	2	7	8	5	8	3	**33 (4.5)**
Abdomen	0	0	1	5	13	5	8	9	**41 (5.5)**
Spine	0	0	0	0	2	1	5	4	**12 (1.6)**
Eye	0	1	1	0	6	11	10	3	**32 (4.3)**
Ear	0	0	2	2	9	10	9	5	**37 (5.0)**
Neurovascular	0	0	1	1	4	1	4	6	**17 (2.3)**
Amputation	0	0	2	0	1	0	1	3	**7 (0.9)**
PTSD	0	0	0	0	0	0	1	0	**1 (0.1)**

***First aid treatment to the victims*:** Information was gathered from each file to know whether the injured person got first aid treatment after injury or not. Treatment received in any other places except in Kathmandu, regional and zonal hospital is considered to be

the first aid treatment. Among 218 injured general people 167 (76.6%) got some sort of first-aid treatment at local clinics, health posts or hospitals. Of the injured police only 291 (49.5%) got first aid treatment locally.

***Time of evacuation from the site of injury*:** Information was gathered to know when an injured was evacuated from the site of injury. It was available in 175 general cases and 337 police cases files. These cases were grouped into those evacuated within an hour, within 6 hours, within 12 hours and after 12 hours of injury. The result is encouraging; more than 97% of cases were evacuated from the site of injury within 6 hours. Two cases from general people were found unconscious by relatives in nearby jungle after one day of injury and were evacuated. It was found that the majority of police victims (57.9%) were evacuated within an hour of injury while it was done only in 40% of general people. Contrasting to this majority (56.6%) of general people and 39.5% of police force were evacuated within 6 hours and it was statistically significant (p=0.0018).

***Duration of transport of the injured*:** Duration of transportation to Kathmandu (TUTH & BPH) was also noted. This information was available in 196 general cases and 389 police cases. Table 13 shows the duration of transport to TUTH & BPH. In general more than one third (36.8%) of cases were taken to these hospital only after more than 24 hours of injury. Furthermore, 46.4% of general people were transported after 24 hours. Some of them were admitted in TUTH and BPH after one months of injury. These cases were primarily treated in local or regional hospitals and were referred for management of residual deformity. Out of 389 police cases 10.5% and out of 196 general cases 14.8% were transferred within 6 hours of injury. General people were injured in nearby areas of

Kathmandu; police cases injured in and around Kathmandu and those evacuated directly from the site of injury arrived TUTH or BPH within 6 hours of injury. Compared to general people (22.4%) relatively more police cases (29.8%) were transported to the hospitals within 12 hours. Similarly, more police cases (27.8%) were transferred to the hospitals within 24 hours compared to general cases (16.3%). This difference in duration of transport between two groups was significant (p=0.0002).

***Place from where cases were referred to Kathmandu**:* To assess the level of primary care of the injured, information was gathered where the cases were referred or brought from. Majority of the cases (56.6%) were referred from hospitals after providing emergency treatment (Table 14). Fifty two (26.8%) general cases were referred from local health-post after first-aid treatment. Almost one third (30%) of the police cases were directly brought from the site after mass casualty. This difference was also significant (p=0.00000). Two general cases came themselves to TUTH. In case of police, there is provision of team hospital for primary care. Victims from western part of the country were mostly first taken to Birendra Police Hospital Nepalgunj or Bheri Zonal Hospital where first-aid and emergency treatment was provided. Cases were then referred to BPH Kathmandu or TUTH for definitive treatment. Cases mostly injured in Dolpa Dunai incidence in 2057 BS were directly air lifted to Birendra Army Hospital from the site of injury. From the army hospital police cases were referred to BPH for rehabilitation after emergency management.

Diagram 10 a - Places from where cases were referred (General People)

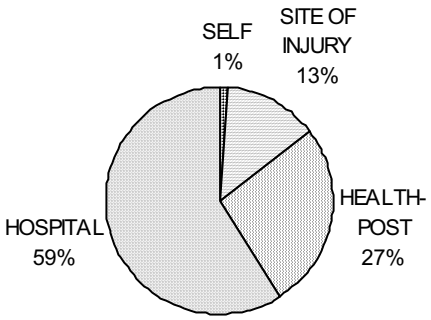
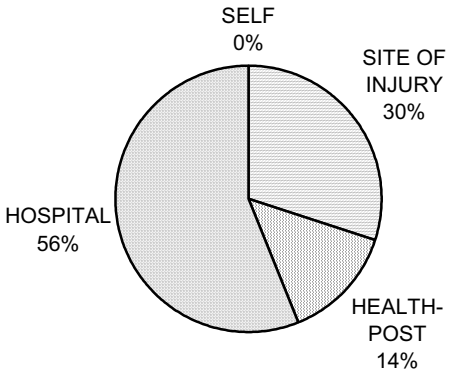


Diagram 10 b - Places from where cases were referred (Police Force)



Mode of transportation: This information was available in 180 general citizens. Out of them 67 (37.2%) were air lifted from the place of referral and another 62.8% were brought by land to Kathmandu. The information was available in 443 files of police cases. Out of them 334 (75.4%) were air lifted and 109 (24.6%) were brought by land. In case of mass casualties injured police force was air lifted directly form the site of injury.

Those brought by land were cases from nearby districts or from Kathmandu valley itself. However, in case of general people the injured were brought by land even from far places.

Accompanying person: Exclusively all injured general people were brought and accompanied by their relatives. However, cases from police force were exclusively brought by coworkers and police personnel, and were accompanied also by their relatives. Police force cases injured at their home during leave (2.7%) were brought by their relatives.

Condition of the injured persons at the time of referral and at the time of receiving at TUTH and BPH*:* Vital condition and state of consciousness of the cases at the time of referral and at the time of receiving the cases at TUTH and BPH was noted. There was very poor written document of referral in both the groups. Therefore, information was gathered from the notes at emergency departments of TUTH and BPH. Even in these hospitals it was not noted in all cases. Out of 196 general cases, 176 (89.8%) had stable vitals and rest about 10% had unstable vitals mainly low blood pressure due to hypovoluminaemia. Of 181 cases in which level of consciousness was noted among the general people 167 (92.3%) had 11 to 15 GCS, 13 (7.2%) had GCS 7 to 10 and 3 cases (1.7%) had less than 7 GCS.

More better than in general people, injured police force had stable vitals (97.0%) in the Emergency department of the hospital. Similarly, level of consciousness among the

police force at emergency of TUTH and BPH was better. Out of 344 cases whose GCS was noted 98% (338) had GCS of 11 to 15.

Emergency management and time of admission of the cases after arrival in the hospital: Except two cases those came directly to out patient department of TUTH all cases from both the groups were managed and admitted immediately after arrival. In all cases necessary available investigations were performed. As per the case wound care, administration of immunization against tetanus and antibiotics, non-steroidal anti-inflammatory drugs was adequate. According to need, cases were treated with blood transfusion, intravenous fluids, oxygen, splinting of limbs etc. Similarly, emergency operations were planned immediately. Findings show that the management of conflict victims was adequate in the hospitals.

Emergency surgical procedures: Out of 218 general cases 41 (18.8%) cases did not need any surgical procedures on emergency basis. Of 588 cases of police force details of emergency treatment was available only in 521 cases. Out of them 118 (22.6%) needed no emergency operation. Other cases went under some surgical intervention and in some cases with multiple injuries more than two surgeries were done. Debridement of the wounds, suture, and tendon repair was the commonest emergency surgical procedure in either of group, 71.2% among general and 89.8% among police force. External fixation of open fracture bones following debridement of wound was second common procedure (12.4% general and 10.2% police). Close fractures were not much managed surgically in emergency basis; it was immobilized with slab or cast. Thoracotomy with chest tube,

exploratory laparotomy (resection of gut segment and colostomy), neurovascular exploration and repair etc were other emergency procedures. Three police man had to under go below knee amputation.

Emergency surgical procedures	**General people**	**Police force**
Wound debridement, suture, tendon repair	126	362
Debridement and external fixation	22	41
Close reduction and pop cast	11	9
Craniotomy	3	0
Tracheostomy	1	0
Thoracotomy & chest tube insersion	5	7
Exploratory laparotomy	16	15
Exploration & repair of NV structure	13	3
Fasciotomy	4	3
Eye exploration & repair	6	3
Amputation	0	3

***Definitive surgical procedures*:** After necessary emergency management of the cases and stabilization of the patient for surgery definitive procedures were carried out. Information was available in 521 police cases and 218 general cases. As mentioned above 118 police and 41 general victims did not under go any emergency surgical procedures. Cases who did not under go emergency surgery might have under gone surgical treatment in later

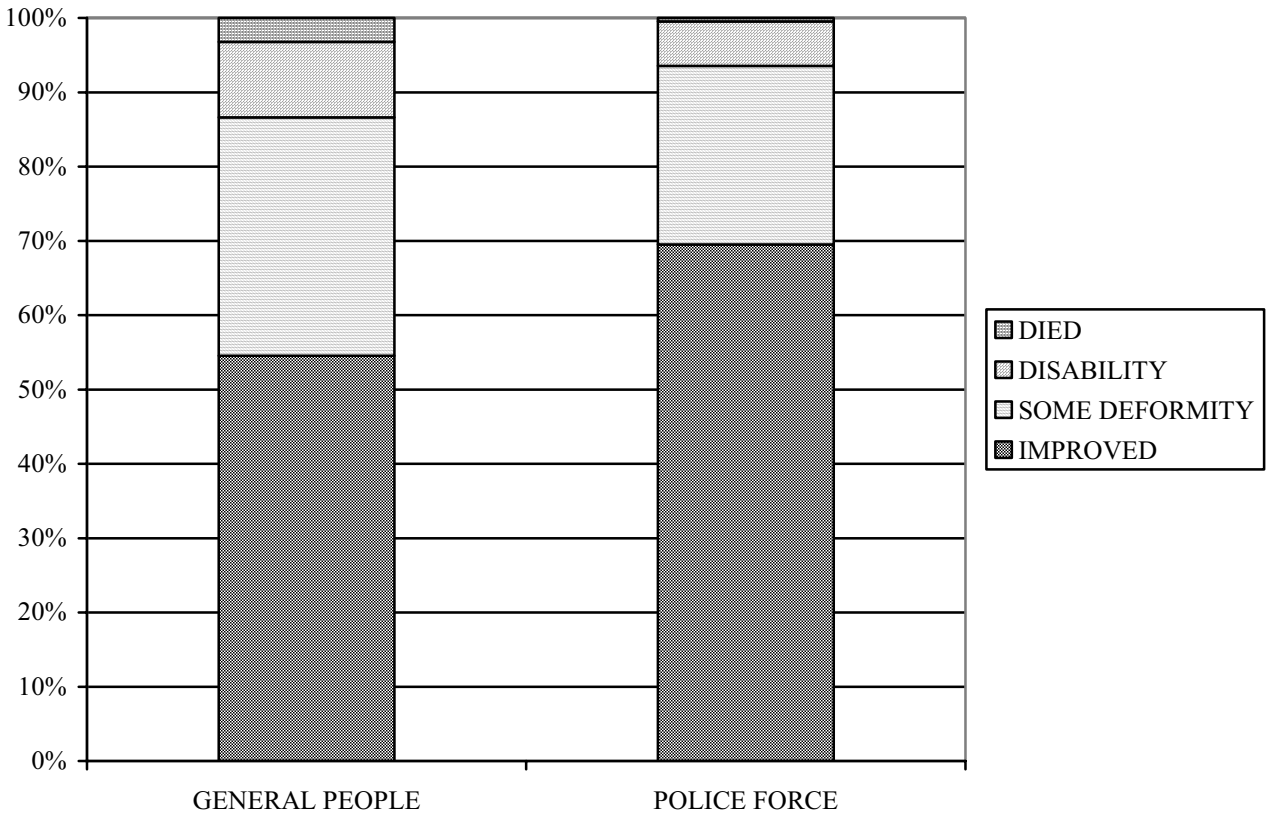
days. Among the police cases 302 and among the general people 65 cases did not need definitive surgery. Major surgical procedures in both groups are listed below. Cases with multiple injuries had undergone more than one operation and some cases had to be more than one time. Some were operated six times. Re-debridemnet of the wound, removal of foreign body, secondary closure etc was common definitive surgical procedure in either group. Soft tissue debridement as definitive surgical procedure was common among police (52.0%) compared to general people (27.5%). Open reduction and internal fixation of fractured bones and joint dislocation was frequently done definitive surgery among general people (52.4%). It was less common among the police (12.8%). This finding suggests that general peoples were more severely injured than police peoples. Application external fixator, close reduction and cast application, neurovascular repair, bone and skin grafting, tendon repair, rotation flap, were other frequently done surgical procedures. Exploration and enucleation of eyes was done in 4 cases from either group. Some of the cases were discharged and managed in out patient department.

Procedures	**General people**	**Police force**
Debridement and secondary suture	42	114
ORIF of fracture and dislocation	83	28
External fixator (Ilizarov & other)	13	3
Close reduction & POP casting	18	15
Neurovascular repair	19	1
Bone grafting	12	8
Tendon repair & transfer	13	4
Amputation	6	3
Skin grafting	16	15
Rotation flap	6	5
Enucleation of eye	4	4
Arthrodesis	1	1
Corrective osteotomy	1	1
Colostomy closure	3	1
Rhinoplasty and pinna reconstruction	2	1
Arthroscopy	1	1
Tracheostomy	1	0

***Post operative condition*:** Condition of cases after operative procedure was grouped as those improved, had some residual deformity, had permanent disability or were deceased. Out of 186 general cases who under went surgery 102 (54.8%) improved, 60 (32.3%) had some deformity, 19 (10.2%) developed disability after the operation and six cases (3.2%)

died after the operation. Similarly, among the police cases 433 cases underwent operative procedure, out of them 301 (69.5%) improved, 104 (24.0%) developed residual deformity, 26 (6.0%) became disabled and two (0.5%) died. The difference in post of condition between both groups was statistically significant (p=0.0003).

Diagram 11 – Post operative condition



Duration of hospital stay: Total duration of hospital stay in either group was calculated. The range being 1 day to two and half years, on an average general people stayed in the hospital for 33.6 days and police people stayed for 20.6 days.

Condition of the cases at the time of discharge: Condition of the cases at the time of discharge noted in the files of each case was ascribed. Two general cases were treated on out patient clinic. Table 15 shows that about 30% of general people and 52% of police were cured at the time of discharge suggesting that police cases had relatively less severe trauma compared to general people. Almost half of the injured general people needed regular rehabilitation service after hospital discharge that was higher than one third of injured police. Similarly, 18.8 % of injured general people needed re-admission and re-operation; slightly less than this 14.0% of police cases needed it. Six general and two police cases died during treatment at hospital. These differences in the outcome of treatment among the police and general people was significant (p=0.0000).

Diagram 12 a - Condition of case at the time of discharge (General People)

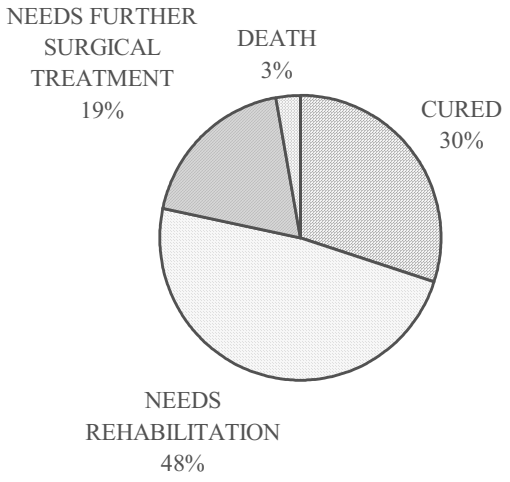
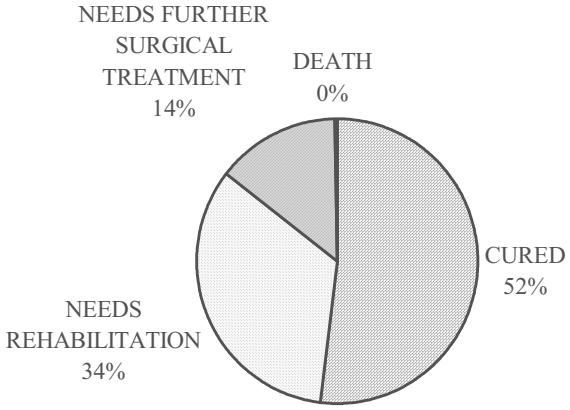


Diagram 12 b - Condition of case at the time of discharge (Police Force)



Follow-ups and rehabilitation of the cases was not recorded well in the files of either hospital. However, some cases had very regular follow-up and rehabilitation.

Functional outcome: Depending on the condition of the cases at the time of discharge functional outcome of each case, except those died, was graded into 1) those who can

resume their previous job, 2) those who has to change their nature of work, 3) those who has to leave the job or 4) those who became dependant to others. Victims who can still work but not as efficiently as before trauma, and with one eye vision loss, one ear hearing loss etc are grouped into group 2. Those victims who can perform their daily life activities but are economically not active are grouped into group 3, and those dependants on others for daily life are grouped as 4.

Almost two-third of cases (65.7%) had good functional outcome. Only 58% of general people could resume their previous job after injury. Table 16 further shows that 30.7% of general people and 27.2% of police force had to change their nature of work. Among the police force 2.5% had to leave the job and there could be provision of pension or other compensation. However, 8.5% of victims from general people had to leave their work meaning that they became economically handicapped. Furthermore, 1.9% of the victims (2.8% general and 1.5% police people) became dependant on others even for daily activities of life. The difference in functional outcome of the victims at the time of discharge and/or latest follow-up was significantly different (p=0.0006).

Diagram 13 a - Functional outcome (General People)

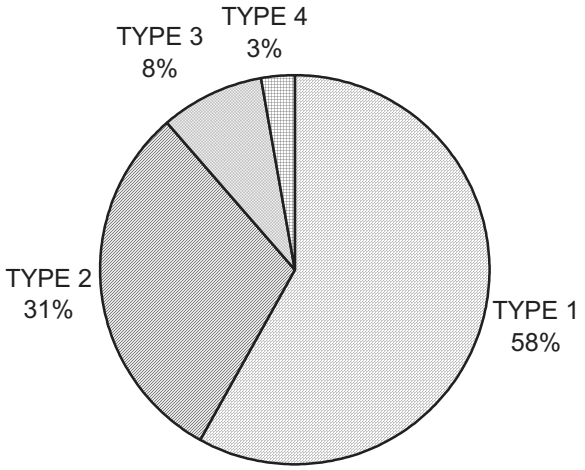
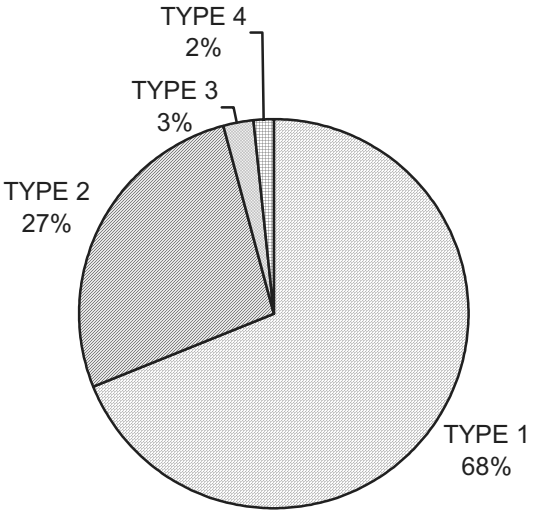


Diagram 13 b - Functional outcome (Police Force)



Discussion:

War, said Carl von Clausewitz, is a chameleon. The cause may be any things like ideology, politics, or ethnicity and the act of war and terrorism are increasingly prevalent in contemporary world. In the war history of the world civil wars in Columbia, Bosnia, Kosovo, Northern Ireland, African countries like Congo, Angola, Rwanda, Somalia, Uganda, Burundi, Chad, Sudan, Ethiopia, and in Asia Middle east, Afghanistan, India, Sri-Lanka, Myanmar, Cambodia, East Timor has caused significant loss of lives and destruction of infrastructure. In 1993, there were at least 30 conflicts going on through out the world. Mortality from war has reached more than 100 million since the early 1990s. A comparable number have died indirectly from famine and disease associated with the disruption of agriculture and infrastructure from wars. Since 1945, 66-75% of the mortality victims have been civilians, of whom 15 million have been women and children (1,2,3). During World War II more death casualties took place at many places of world. Through out the history, weaponry has become more efficient, accurate, and powerful, resulting in more devastation and loss of human life. The violence of war and terrorism often results in a multi-tiered cascade of negative life events including loss of lives, mental and physical trauma, displacement, and drastic changes in daily routine and community values leading to severe bio-psycho-social sequels.

Political violence has significant short and long term effects on the society in terms of physical and psychological trauma, financial losses, poor schooling and health, biased pattern of child development, migration of families and further division of society into identifiable communities which may prolong the conflict.

In Nepal, political conflict started when one of the political party undertook the path of armed revolution in 1996 (2052 BS). Stevenson PC. (4) reports in 2001 that the rebel group has wrested control of areas in 45 of 75 administrative regions and has resulted in more than 1700 deaths since 1996. It is presumed that number of injured cases is many fold bigger than number of death. There are lot of reports on number of death casualties and number of injured from either groups from government, rebel groups and many human right organizations of Nepal (5). However, very less has been reported on details of the injured cases. In this study, thus, we did a retrospective study on political conflict victims managed at TUTH and BPH Kathmandu.

Total number of political conflict victim cases attending either of the hospitals was 806. Out of them 218 were general civilians and 588 were police force. All the victimized civilians were exclusively taken to TUTH and majority of victims from police force were taken to BPH and some to TUTH.

Twenty one to forty years of age is considered to be the most active stage of a human life. Majority of the victims were of this age group. More than 92% of the cases from police group were of active age group. Age of the injured general people ranged from 5 years toddler to 80 years elderly. More than 54% of them were of active age group. After 30 years of age a person is established, and is professionally and economically active till the age of 60 years. About 60% of the victimized general citizens belonged to 31 to 60 years of age. Difference in age distribution of victims was strongly significant ($p=0.0000$). Male female ratio was 39.3:1. Our result is similar to that of Afghanistan where the mean age of the victims was 27.29 +/- 9.46 years with a male to female ratio of 33:1(6). In Afghanistan during 1997 to 2002, the majorities (61%) of adult victims were

injured by landmines, and the majority (66%) of children and adolescents were injured by unexploded ordnance. War-related injuries were the leading cause of disability, affecting almost exclusively adult males (7) in Taliban controlled province of Afghanistan. In this study, number of injured children of less than 15 years of age is about 5% and senior citizens of more than 60 years is about 6% and, are innocent victims. About 5% of he victims belonged to 16 to 20 years of age and were probably school students. There are many articles from different parts of world facing combat situation describing different aspects of children suffering during the war and in its aftermath (3,8,9,10,11). Children are often innocent non-combatant victims of war sustaining physical and psychological trauma.

Since the start of political conflicts in Nepal in 2052 BS (1996) the number of victims is gradually increasing. During the first four years of insurgency number of victims was relatively more among the general citizens than the police force. However, in later years, number of victims increased in police force without decline in number of casualties among general citizens. More than 61% of the general cases were victimized during 2058 and 2059 BS only. Among the police cases more than 51% were injured during 2057 and 2058 BS. Incidence of conflict victim cases coming to TUTH and BPH in 2057 BS is quite different. In this year general people were least victimized (4.6%). However, majority of the police force was injured in the year (27.6%). It may be due to more armed conflicts between the rivals, attacks in police posts and/or revolutionary training centers.

Majority (73.8%) of the victims were police constable, the lowest rank police. The number of injury cases is less as the rank is higher. It may be due to large number of force of constable level mobilized to the conflict affected areas. Occupation wise farmers,

politicians, teachers and students are mostly victimized. It was noted that some individuals, among the general people were having more than one occupation like farmers were local politicians. Majority of the victims were farmer (55%). Though there is some drop in the relative incidence during 2055 to 2057 BS farmers are continuously being victimized from the initial years to date. They might be victims of "class enemies" of the civil war. Number of businessman and government service holder is less and they were victimized only during the later years.

Till 2001, as reported by Stevenson PC (5), 45 of 75 districts of Nepal were affected by the insurgency but by the year 2003 there were conflict victims from all parts of Nepal except 7 districts. Middle-west region of Nepal was the origin of insurgency and is the most affected region. Majority (34.5%) of the victims were from this region. In initial two years it was only the middle-west region affected and most of the victims were general people. The figures show that conflict is persistent in the region. During nine years of insurgency police force was injured more (37.8%) compared to the general people (25.7%) in the region. Second most affected is central region (29.6%). Percentage of injured victims from both the groups was almost equal. General people were almost equally victimized in the western region (25.2%). However, number of injured police force was relatively less (16.3%) in western region. Though close to the middle-west, far-west region was least affected by the conflict (6.4%) and was affected only during later years. It was the Kailali district mostly affected in the far-west region, out of 18 cases from the district 66.6% were general people. Eastern region of Nepal was second least affected (10.7%). General citizens were slightly more injured (12.4%) than police (10.0%).

Among the general people 79.1% were at home when they were abducted and victimized or were victimized at home. Twenty seven (13.1%) were at work or were on the way to work. Most (84.9%) of the general people were personally targeted and were injured singly. However, 96% of the police victims were on duty, patrolling or were at the police post at the time of injury. Similarly, 90.4% were injured as part of mass casualty. Fourteen (2.7%) police were victimized while they were at home on leave or were at home after duty. The difference was statistically significant (p=0.0000). May be an act of gorilla war majority of the injuries in both the groups took place in night (general people 68%, police 60%).

Common mode of injuries was blunt trauma, sharp-cut injury, gun-shot and blast injuries. Majority (93.6%) of police had blast and gun-shot injury, high velocity injury. Contrast to this, 71% of general people was injured with blunt and/or sharp-cut injury, another 18% had gun shot injury (p=0.0000). In the ICRC hospital Peshawar, 48% of all war wounded in 1995 were injured as a result of mines (9). Mellor SG & Cooper GJ. (12) analyzed on 828 servicemen killed or injured by explosion in Northern Ireland 1970-84**,** suggesting that the blast injury was a common mode of injury. Our results are different than Sarajevo war (13) where daily bombardment and sniper fire directed at civilians have caused a steady stream of casualties (an average of 119 killed or injured per day in 18 months). Similar report is from Sri-Lanka (14).

In a retrospective study of 922 victims of the Afghanistan war admitted to Mekkah Mukarramah Surgical Hospital, from April 1987 to April 1989. The lower limbs were the most common site of injuries (15, 21,26). In our study, in majority (55.9%) of the cases

limbs, upper and lower, were injured. Involvement of lower limb was significantly (p=0.0000) more frequent among the general people (39%) than police force (27.4%). Head (16.4%), chest (8.9%), abdominal (6.6%) and spinal (4.6%) was also commonly involved. The ratio of critical-area wounds (trunk, head, and neck) to extremity wounds was 0.78. Our finding is much higher than reported from the Afghanistan war (0.17) (14). External and internal perforating eye injury was found in 3.7% of cases. Hearing loss due to blast injury and external ear injury was noted in 3.5% cases. Post trauma stress disorder (PTSD) is common psychiatric problem in war situation (15,16,17,18). Though it was noted only in 5 victims from general people and 1 in police it is presumed to be more common in both the population. More detailed study on post trauma stress disorder is recommended among the survivors of war in Nepal.

Number of organs injured and severity of injury depends on the mode of injury. It was found that in gunshot injury usually one or two parts of body were involved. Multiple part injuries were found in blunt and blast injury. One part injury was more common among the police force (47.4%) compared to general people (26.1%). Three parts and more than three parts injuries were more common among the general injured people (p=0.0000). This may be due to blunt trauma, physical assault by group of unknown people being the most common mode of injury in this group of victims. Our finding is different than in Sri-Lankan armed combat, the injuries where there were multiple injuries involving many regions of the body (20). Poly-trauma cases with more than two organs involvement has poor prognosis. The finding suggests that victims from police force had better prognosis compared to general people.

Different classification systems have been recommended to score the severity of war injury (22,23,24,25). ICRC has recommended it own classification system as a guide to treatment and to demonstrate its ease of use, especially in situations where the treating surgeons may have little experience with or knowledge of ballistic details. We collected the information from the files of the hospital. The final diagnosis made was noted. In none of cases Red Cross Classification was applied.

Incidence of soft tissue injury was more in police force (51.8%) compared to that of in general people (28%). Interestingly, though the blast and gunshot injuries were the commonest mode of injury, majority of police had soft tissue injury. It may be due to poor first aid management at the injury site for police or there is random referral system of the injured individuals. Fracture of extremity bones, close and open, was more among the injured general people than in police force. Open fracture is said to have poor prognosis that depends on its grades, grade III having worst prognosis. Gustilo's classification was used in grading of open fractures of limb bones. Khatod M et al reported suggesting the Gustilo grading system of open fractures as a significant prognostic indicator for infectious complication (27,28,29,30,31,32,33).

Incidence of bone fracture, close & open, in general people was 14.3% and 31.2% respectively which is much higher than in police force, close fracture 2.6% and open fracture 18.1% (p=0.0000). Out of 138 general cases with open fractures 31.2%, 52.2% and 16.7% had grade I, II and III open fractures respectively. Compared to this out of 134 cases in police force 8.2%, 23.9% and 67.9% had grade I, II and III open fractures respectively. Higher number of grade II & III open fracture cases in police was statistically significant. Blast injury and gunshot injury being the major mode of injury

among the police is the cause of high incidence of grade III open fracture in this group of victims.

Incidence of penetrating head, chest and abdominal injury was almost same in both groups. Abdominal injury was more common in police (5.5%) and was due to penetrating bullet injuries. Penetrating wounds of head, chest, abdomen, mainly due to gunshot and blast injury, has been claimed to be main cause of mortality in combat situation (34,35,36,37,38,39) in different parts of the world.

Peripheral neurovascular injury was significantly (p=0.0000) more among the general people (6.8%) than among the police force (2.3%). Femoral nerve (40), Brachial plexus injury (41), arterial injuries (42) were reported to be disabling causes after the war. Surprisingly, relative number of traumatic amputation of extremities was more among the general people (1.8%) compared to police (0.9%). Traumatic amputation its causes and rehabilitation has been studied (8,21,43). Number of amputations in our collection is relatively less. Eye and ear injury was found to be more among the police force. Blast injury was common mode of injury among the police force causing sensory neural hearing loss, tympanic membrane rupture and splinter injuries to eye. Two general cases with multiple soft tissue injuries and open fracture developed crush syndrome leading to acute renal failure. Spinal fracture cases were more among the police force (1.6%) compared to general people (0.5%). Similar to the war in Bosnia Herzegovina and Croatia and in Iraq Iran war the main mode of injury of these injuries was explosive, gunshot and penetrating injuries (34,35,36).

This figure suggests that the general people had more severe injuries leading to disability than police force. There is possibility of higher, on the spot or on the way, death casualties among the injured police force as high energy injury was common among them. In the year 2058 and 2059, 19 cases were brought dead or were died in the emergency department of BPH.

Treatment success depends on emergency first-aid, quick transportation, early diagnosis, resuscitation, surgical therapy and intensive care (38). A public trained in life-supporting first-aid, and physicians and paramedics with experience in advanced life support may have enhanced lifesaving efforts in Sarajevo (13). However, in Sri-Lankan war inadequancy of first-aid and lack of organized transport for victims are blamed for poor management of war victims (14). In our series the findings are very encouraging, large majority of cases (97%) were evacuated within six hours of injury. Evacuation of cases and transportation of them to Kathmandu was better in police force compared to general people ($p=0.0018$). In cases of general people 46.4% were transported only after 24 hours of injury. About 75% of cases were referred from local health post and hospital after providing first-aid and emergency treatment. Large bulk (30%) of police force was taken BPH and TUTH directly from the site of injury. This may have two reasons, one being prompt better health services to police and another poor first aid management of the police victims at the injury site which may lead to death of severely injured cases. Two third of the police victims were air lifted to Kathmandu. Outcome of war-injured patients treated at first aid posts of the International Committee of the Red Cross in Afghanistan war shows that the result was better among the cases referred than those brought directly to the hospitals (44).

Majority of the cases (90% general people and 97% police) had stable vital at the time of arrival at emergency department of each hospital. Both groups had good level of consciousness (GCS >11).

All victims arrived were managed promptly and adequately in the hospitals. In the emergency of each hospital wound care dressing and according to need medication and immunization was provided. Wound debridement, suture, tendon repair and dressing, exploratory laparotomy, throracotomy, nerve repair etc were commonly done operations in the emergency basis. Similarly, wound debridement, secondary closure, open reduction and internal or external fixation of fractured bone, close reduction and immobilization, neuro-vascular and tendon repair or tendon transfers, bone and skin grafting were common surgical procedures as definitive surgical management of the cases.

Compared to police force general victims had poorer outcome of the surgery. Almost one third of them had some residual deformities; more than 10% of them developed disability in the form of organ loss, loss of function of organ etc. and 3.2% died after operation. Post operative result was comparatively better among the police. This finding again suggests more severe injury to general people.

Average duration of hospital stay was 33.6 days for general people and 20.6 days for police victims. According to the record section of TUTH this figure is higher than average hospital stay of patient, 7 days, and that of department of Orthopaedics is 16 days.

Only about 30% of general people and 52% of police were cured at the time of discharge suggesting that police cases had relatively less severe trauma compared to general people.

Almost half of the injured general people needed regular rehabilitation service after hospital discharge that was higher than one third of injured police. Similarly, 18.8 % of injured general people needed re-admission and re-operation; slightly less than this 14.0% of police cases needed it. Six general and two police cases died and admission and during treatment at hospital. These differences in the outcome of treatment among the police and general people was significant (p=0.0000).

Waller J A et al have recommended the Injury Impairment Scale (45) with disability. We graded the functional outcome of each case according to the result of treatment at the time of hospital discharge and/or at the time of their latest follow-up. In general, more than two-third of cases (65.7%) had good functional outcome. Only 58% of general people could resume their previous job after injury. Findings further shows that 30.7% of general people and 27.2% of police force had to change their nature of work. Changing nature of work might be easier in government job like in police, but in case of general people it will reduce their productivity, as majority of the victims were farmer. Among the police force 2.5% had to leave the job and there could be provision of pension or other compensation. However, 8.5% of victims from general people had to leave their work meaning that they became economically handicapped. Young person supporting the family becomes burden to the family. Furthermore, 1.9% of the victims (2.8% general and 1.5% police people) became dependant on others even for daily activities of life. The difference in functional outcome of the victims at the time of discharge and/or latest follow-up was significantly different (p=0.0006).

Analysis of the information gathered from victims among general citizens and police force shows that general people were more severely injured, had less access to higher health facilities, prolonged hospital stay and had poorer functional out come. It has a big psycho-socio-economical impact on the victims, their family, society and the whole nation.

Recommendations: On the basis of the findings of this study following recommendations are made.

1. The political conflict going on in the country should be brought to an end. It has been causing tremendous loss to the country.
2. Number of wounded should be more than the number of killed in the conflict situation. Therefore there should be a good first aid, evacuation, transport and emergency treatment system for the wounded.
3. In war situation both groups of people are expected to be killed and wounded, the report covers only the general citizen (few of them might be the revolutionary group) and police force, how and where the victims from revolutionary group get their treatment is big concern. As they are also citizens of this country nation should think of them also.
4. Hospital records should be maintained properly.
5. Long term plan should be made to rehabilitate the victims who can not resume their work or are handicapped.
6. Further detailed study on political conflict victims in different aspects should be carried out to know the real situation.

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