

**Who are vulnerable? - Vulnerable road users comprise pedestrians, cyclists and those using motorized two-wheelers who do not have a protective “shell” around them and are therefore, more at risk than those in vehicles.**

Vulnerable road users are at additional risk where their needs have not been taken into consideration during the planning of land use or road engineering. In most countries roads are planned and built to allow motor vehicles to travel faster while insufficient thought is given to the needs of pedestrians and cyclists, thus forcing them to face increasing risk in use of roads and road crossings. (Source: WHO: Global Status Report on Road Safety 2013)

- **In 2016, 7375 accidents were reported in Delhi, in which 1591 persons lost their lives and 7154 were injured which affected 8745 road accident victims.** (Table 3.1)
- **18.19% of the total road accident victims lost their lives** (16.41 % in the year 2015). **The fatality rate amongst all road accident victims which has been decreasing steadily for the last few years, increased marginally in 2016.** (Table 3.1)
- **Pedestrians continued to suffer the highest casualties as victims of road accidents.** During the year 2016, a total of **682 pedestrians lost their lives and 2551 were injured as compared to** 684 pedestrians who died and 2862 injured during the year 2015. This represents **42.86 % of all victims killed** in the year 2016 as compared to 42.17 % in 2015. Proportions for the injured pedestrians were higher at 35.65% in 2016 as against

34.65% in 2015 (Table 3.2). **This signifies that pedestrians are most vulnerable victims in fatal road mishaps.**

- 2551 (35.65%) pedestrians were injured and 682 (42.86%) were killed in 2016. The trend in the deaths of pedestrians shows that the share of pedestrian deaths range between 40% and 45% of total victims in fatal accidents. (Table 3.2).

## Reasons:-

- **Lack of proper and sufficient numbers of pedestrian crossings, Foot Over Bridges (FOB), subways and non-continuous, intentionally encroached, un-friendly and poorly maintained footpaths etc., ignorance of road safety rules, disregard to other road users’ rights by vehicle drivers can be the major reasons of such accidents.**
- **The condition of road crossing facility is generally poor and not pedestrian friendly. Faulty designing of FOBs, lack of handicap friendly escalators, dark and dingy subways, lack of thought regarding requirement of FOBs/ Subways including long distances and connectivity with arterial roads, lack of signages useful for pedestrian safety- all lead to unsafe pedestrians crossing at level.**
- **The share of cyclist as victims of road accidents have remained below 10% for the last 10 years and around 3% to 6% during last 5 years. In the case of cyclists injured, this percentage has been reducing gradually over last 14 years and has come down from 7% in 2002 to 3.04% in 2016 (Table 3.2).**

- An overall decreasing trend is being observed in the deaths of cyclists over the years and in last 4 years the number of fatalities has remained below one hundred.
- The **Electric rickshaw**, was involved in 6 fatal accidents and 50 simple accidents during the year 2016. 6 persons were killed and 81 persons were injured in these accidents.

**TABLE – 3.1**  
**VICTIMS (KILLED and INJURED)**

YEAR	PEDESTRIANS		CYCLISTS		CAR OCCUPANTS		SCOOTER / M. CYCLE RIDERS		BUS PASSENGERS		*SLOW MOVING VEHICLES' PULLER AND PASSENGERS		DRIVERS OF ANIMAL DRIVEN VEHICLE		OTHER DRIVERS		TOTAL	
	KLD	INJ	KLD	INJ	KLD	INJ	KLD	INJ	KLD	INJ	KLD	INJ	KLD	INJ	KLD	INJ	KLD	INJ
2002	817	3121	172	617	50	638	394	1977	53	183	45	226	1	6	146	1049	1696	7929
2003	856	3017	186	508	61	671	436	2100	33	169	48	250	1	2	164	1682	1801	7829
2004	979	3096	181	506	42	684	467	2244	49	209	44	295	1	14	214	949	1977	7997
2005	935	3106	179	528	57	525	568	2293	60	303	46	255	1	12	203	960	2049	8282
2006	1030	3194	154	451	57	611	614	2485	66	269	41	276	0	7	207	987	2169	8280
2007	1071	2831	128	390	64	580	594	2536	44	148	29	198	5	29	205	998	2140	7710
2008	1043	3013	107	353	41	548	641	2355	31	136	19	166	7	24	204	744	2093	7347
2009	1170	2577	121	261	58	444	691	2350	37	121	29	170	5	20	213	893	2325	6936
2010	960	2465	137	309	48	493	705	2438	27	97	37	171	2	14	237	1121	2153	7108
2011	961	2387	107	295	66	423	676	2396	25	96	32	198	1	15	242	1165	2110	6975
2012	828	2261	114	249	64	482	577	2236	16	91	26	121	1	12	240	1181	1866	6633
2013	749	2568	92	305	77	522	613	2573	20	111	32	188	2	28	235	803	1820	7098
2014	749	2949	64	313	51	524	569	3136	7	66	24	296	3	20	204	979	1671	8783
2015	684	2862	71	297	80	632	567	3270	11	53	23	255	2	28	184	861	1522	8258
2016	682	2531	53	218	66	431	572	2911	4	51	34	244	5	37	175	711	1591	7154

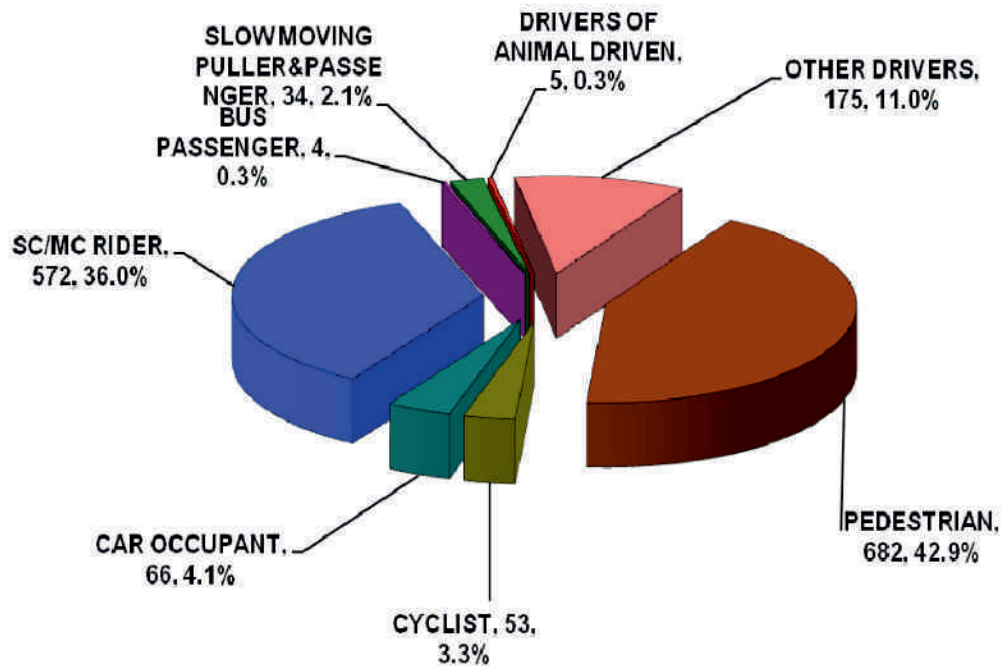
\* Hand Cart, Electric rickshaw and Cycle Rickshaw.

**TABLE – 3.2**  
**VICTIM PROFILE (% OF TOTAL IN THE YEAR)**

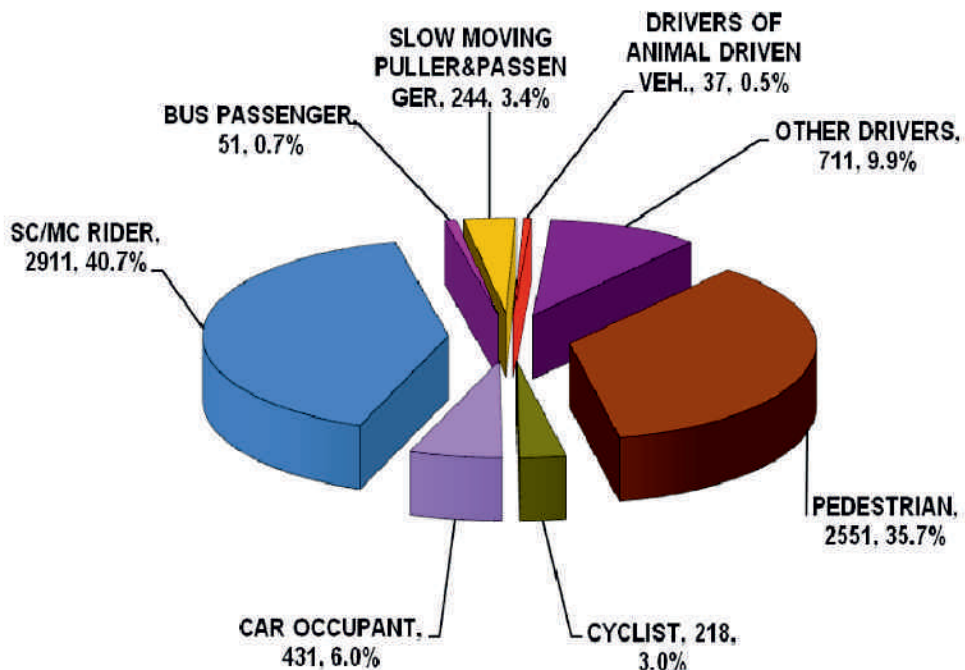
YEAR	PEDESTRIANS		CYCLISTS		CAR OCCUPANTS		SCOOTER / M. CYCLE RIDERS		BUS PASSENGERS		*SLOW MOVING VEHICLES' PULLER AND PASSENGERS		DRIVERS OF ANIMAL DRIVEN VEHICLE		OTHER DRIVERS	
	KLD	INJ	KLD	INJ	KLD	INJ	KLD	INJ	KLD	INJ	KLD	INJ	KLD	INJ	KLD	INJ
2002	48.27	39.36	10.24	7.78	2.94	8.05	23.23	24.93	3.13	2.30	2.65	28.54	0.05	0.07	8.60	13.22
2003	47.53	38.54	10.33	6.49	3.39	8.57	24.21	26.82	1.83	2.16	2.67	3.19	0.06	0.03	9.11	13.82
2004	49.51	38.71	9.15	6.32	2.12	8.55	23.62	28.06	2.47	2.61	2.22	3.68	0.05	0.17	10.82	11.86
2005	45.63	41.13	8.74	6.37	2.78	6.34	27.72	27.68	2.93	3.66	2.24	3.08	0.05	0.14	9.91	11.60
2006	47.48	38.57	7.2	5.44	2.62	7.37	28.30	30.01	3.04	3.24	1.89	3.33	0.00	0.08	9.72	11.92
2007	50.06	36.71	5.98	5.05	2.99	7.52	27.75	32.89	2.05	1.91	1.35	2.56	0.23	0.37	9.57	12.94
2008	49.88	41.07	5.11	4.85	1.95	7.54	30.63	32.37	1.48	1.86	0.90	2.28	0.33	0.32	9.74	10.22
2009	50.32	38.59	5.20	3.76	2.49	6.40	29.72	33.88	1.59	1.74	1.24	2.45	0.25	0.29	9.16	12.87
2010	44.58	34.67	6.36	4.34	2.23	6.93	32.74	34.29	1.25	1.36	1.72	2.40	0.09	0.19	11.01	15.77
2011	45.55	33.59	5.07	4.15	3.07	6.20	32.06	34.67	1.30	1.29	1.48	2.80	0.04	0.22	11.40	17.10
2012	44.37	34.08	6.10	3.75	3.43	7.27	30.92	33.71	0.86	1.37	1.39	1.82	0.05	0.18	12.9	17.8
2013	41.15	36.17	5.05	4.29	4.23	7.35	33.68	36.24	1.09	1.56	1.75	2.64	0.10	0.39	12.91	11.31
2014	44.82	35.60	3.83	3.77	3.05	6.32	34.05	37.86	0.41	0.79	1.43	3.57	0.17	0.24	12.20	11.81
2015	42.17	34.65	4.37	3.59	4.93	7.65	34.95	39.59	0.67	0.64	1.41	3.08	0.12	0.33	11.34	10.42
2016	42.86	35.65	3.33	3.04	4.14	6.02	35.95	40.69	0.25	0.71	2.13	3.41	0.31	0.51	10.99	9.93

\* Hand Cart, Electric rickshaw and Cycle Rickshaw.

**FIGURE-3.1 VICTIMS KILLED IN 2016 (1591)**



**FIGURE-3.2 VICTIMS INJURED IN 2016 (7154)**



Similar trend is visible in the case of two wheelers (scooter and motor cycle) riders. Over the last 5 year the number of casualties among two-wheeler riders is decreasing gradually except in the years 2013 and 2016 (Table 3.1).

- This is the next most vulnerable category of victims and accounted for 572 (35.95%) of all fatalities in accidents in Delhi and 2911 (40.69%) of all injured victims in 2016. The figure shows an increase from 2015. The number of two wheeler rider victims injured in road accidents decreased by about 11% from 3270 (2015) to 2911 (2016).
- Accident data thus suggest that **two wheeler riders have been involved in 1 of every 3 deaths or injuries**. One important fact that can be noted from Table 3.2 is that the share of two-

wheelers as victims (fatalities and injuries) is gradually increasing.

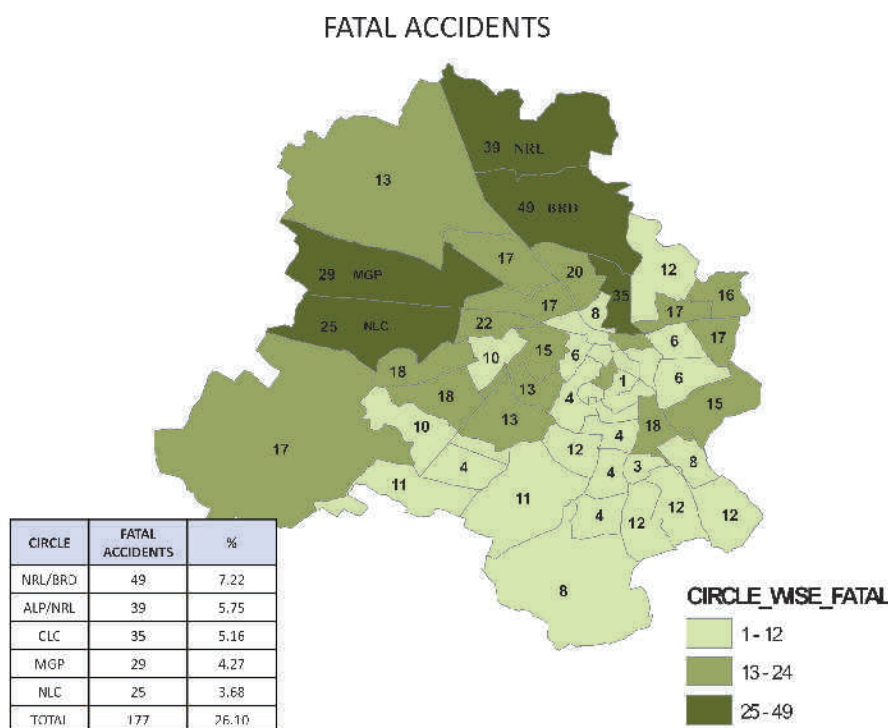
Over the years, the share of deaths of car occupants out of total fatalities has remained between 3% and 5%.

- Though irregular it is showing increasing trend in last few years. In case of non-fatal injuries; it has remained between 6% and 9% over the years.
- From Table 3.1, it is clear that the **bus travel is the safest among the road users** and their numbers are showing a **decreasing trend**.

Map 3.1(a) to Map 3.3(b) shows the traffic circle wise concentration of pedestrians, cyclists and two wheeler victims.

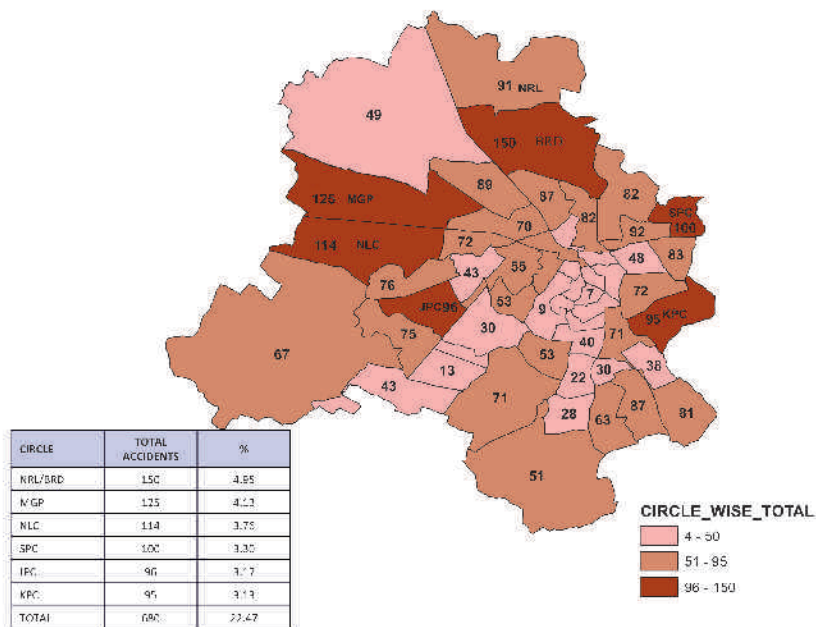
- More pedestrian fatalities were reported in Northwest and Western region of Delhi (Map 3.1a).

## TOP CIRCLES IN PEDESTRIANS ACCIDENTS



Map 3.1(a) (for area refer to Map 1.3)

### TOTAL ACCIDENTS

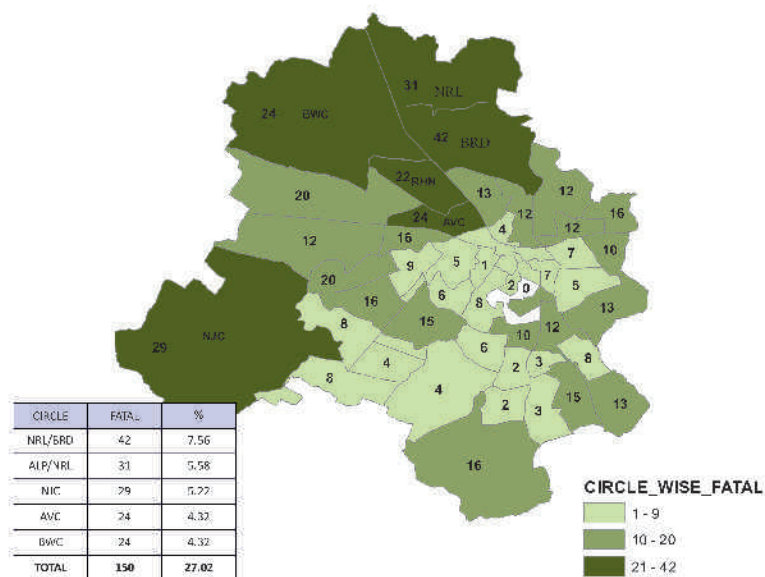


Map 3.1(b) (for area refer to Map 1.3)

- Similar trend is observed for **two wheeler victims; more vulnerable regions of Burari, Najafgarh and Narela** (Map 3.2a).
- The total number of accidents of two wheelers are higher in Burari, Mangol Puri, Dwarka, Kalyanpuri and Najafgarh regions (Map 3.2(b))

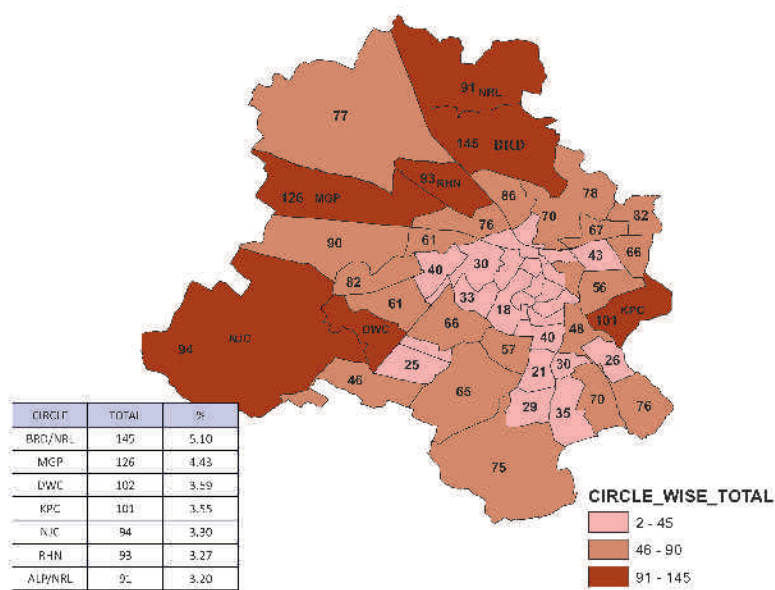
### TOP CIRCLES IN TWO-WHEELERS ACCIDENTS

#### FATAL ACCIDENTS



Map 3.2(a) (for area refer to Map 1.3)

## TOTAL ACCIDENTS

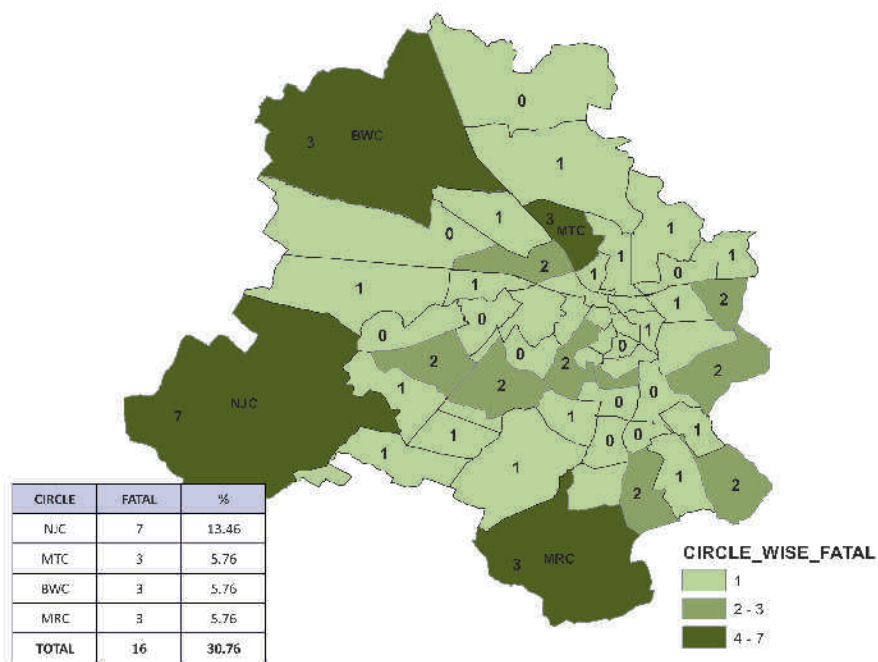


Map 3.2(b) (for area refer to Map 1.3)

Cyclists are more vulnerable in Najafgarh, Model Town, Bawana and Mehrauli region (Map 3.3a).

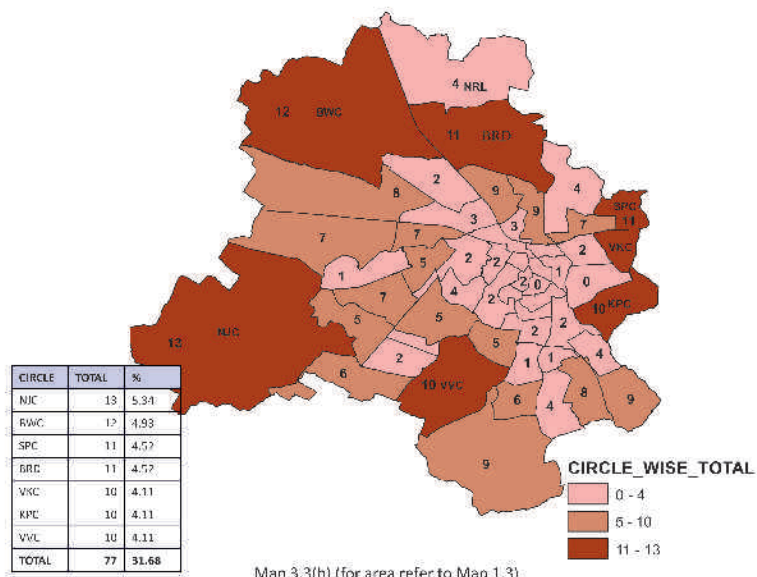
## TOP CIRCLES IN CYCLIST ACCIDENTS

### FATAL ACCIDENTS



Map 3.3(a) (for area refer to Map 1.3)

### TOTAL ACCIDENTS



Map 3.3(b) (for area refer to Map 1.3)

### Demographic classification of all victims:

**TABLE – 3.3**  
**CHILDREN AND ADULTS (SEX-WISE) KILLED / INJURED IN ACCIDENTS**

YEAR	CHILDREN				ADULTS			
	KILLED BOYS	GIRLS	INJURED BOYS	GIRLS	KILLED BOYS	GIRLS	INJURED BOYS	GIRLS
1997	39	30	84	75	2212	61	10376	165
1998	38	41	70	60	1980	123	8490	285
1999	30	28	63	80	1878	109	8234	235
2000	41	22	226	88	1840	111	7934	498
2001	68	30	318	143	1615	129	7293	695
2002	46	21	242	116	1560	69	7039	532
2003	105	33	157	87	1603	60	7107	478
2004	65	24	205	112	1797	91	7224	460
2005	51	22	195	92	1854	122	7523	472
2006	39	21	206	114	2004	105	7385	575
2007	120	22	458	117	1891	107	6678	457
2008	136	45	508	122	1790	122	6140	572
2009	131	43	464	144	1993	158	5563	765
2010	111	38	482	138	1835	169	5738	750
2011	107	50	534	160	1772	181	5344	937
2012	119	39	515	148	1553	155	5056	914
2013	83	27	518	140	1548	162	5431	1009
2014	106	32	573	153	1388	145	6522	1035
2015	111	33	570	174	1347	131	6455	1059
2016	98	27	553	142	1336	130	5577	882

Note: - Children means persons up to the age of 18 years

### SEX RATIO OF PERSONS KILLED

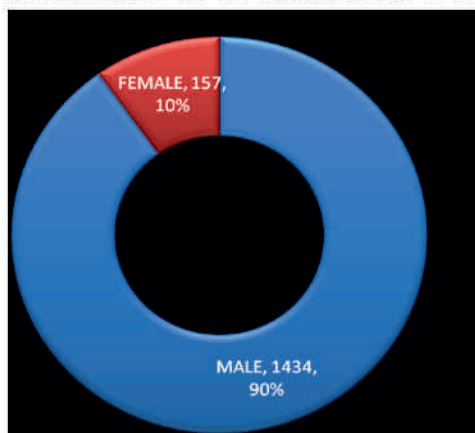


Chart - 3.3(a)

### SEX RATIO OF PERSONS INJURED

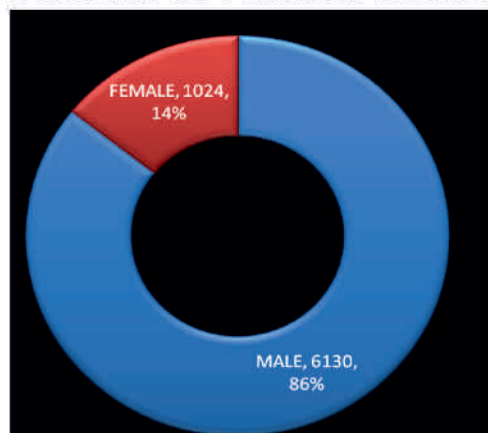


Chart - 3.3(b)

**TABLE – 3.3 (A)**  
**AGE GROUP (SEX-WISE) KILLED / INJURED IN ROAD ACCIDENTS- 2016**

AGE GROUP	PERSONS KILLED			PERSONS INJURED		
	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
<10 YEARS	48	23	71	175	66	241
11-18 YEARS	50	4	54	378	76	454
19-30 YEARS	390	23	413	1724	237	1961
31-40 YEARS	211	22	233	887	125	1012
>40 YEARS	304	50	354	1166	226	1392
UNKNOWN AGE	431	35	466	1800	294	2094
<b>TOTAL</b>	<b>1434</b>	<b>157</b>	<b>1591</b>	<b>6130</b>	<b>1024</b>	<b>7154</b>

**TABLE – 3.3 (B)**  
**AGE GROUP (SEX-WISE) KILLED / INJURED IN ROAD ACCIDENTS- 2015**

AGE GROUP	PERSONS KILLED			PERSONS INJURED		
	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
<10 YEARS	44	26	70	181	98	279
11-18 YEARS	67	7	74	389	76	465
19-30 YEARS	373	25	398	1929	274	2203
31-40 YEARS	206	15	221	1010	159	1169
>40 YEARS	308	59	367	1292	266	1558
UNKNOWN AGE	460	32	492	2224	360	2584
<b>TOTAL</b>	<b>1458</b>	<b>164</b>	<b>1622</b>	<b>7025</b>	<b>1233</b>	<b>8258</b>

### AGE PROFILE OF PERSONS KILLED

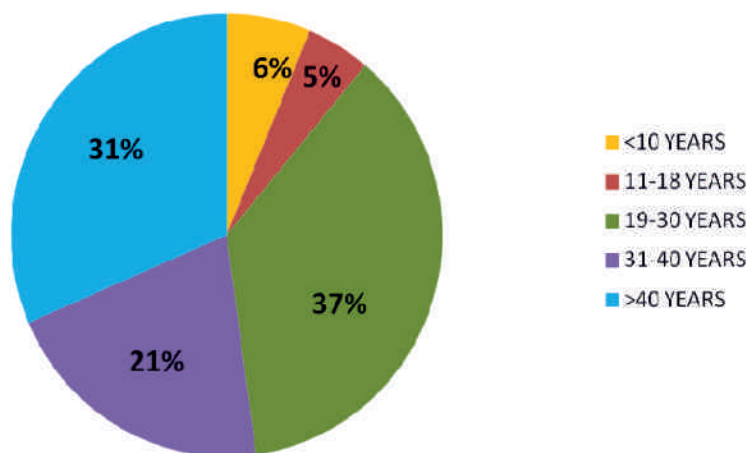


Chart - 3.4(a)

### AGE PROFILE OF PERSONS INJURED

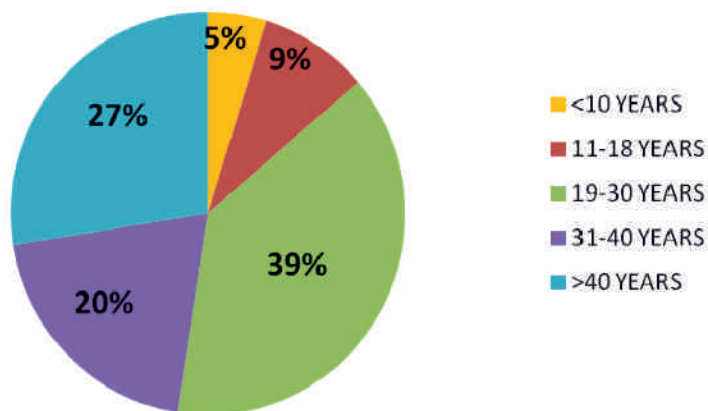


Chart - 3.4(b)

#### **A demographic classification of all victims shows a definite trend.**

- Males outnumber females as victims of road accident. **In 2016, 90.13% of the victims who died were male** across age while in the year 2015 it was 89.9%.
- In all, 1336 male adults and 130 female adults were killed while 5577 male adults and 882 female adults were injured.
- For last few years, the numbers of female adults getting injured has also **been increasing**. However, there was noticeable drop in the death of females in 2016.
- Out of the total **victims of fatal crashes who were children, 98 were boys and 27 were girls, whereas 553 boys and 142 girls were injured.** (Table 3.3).

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