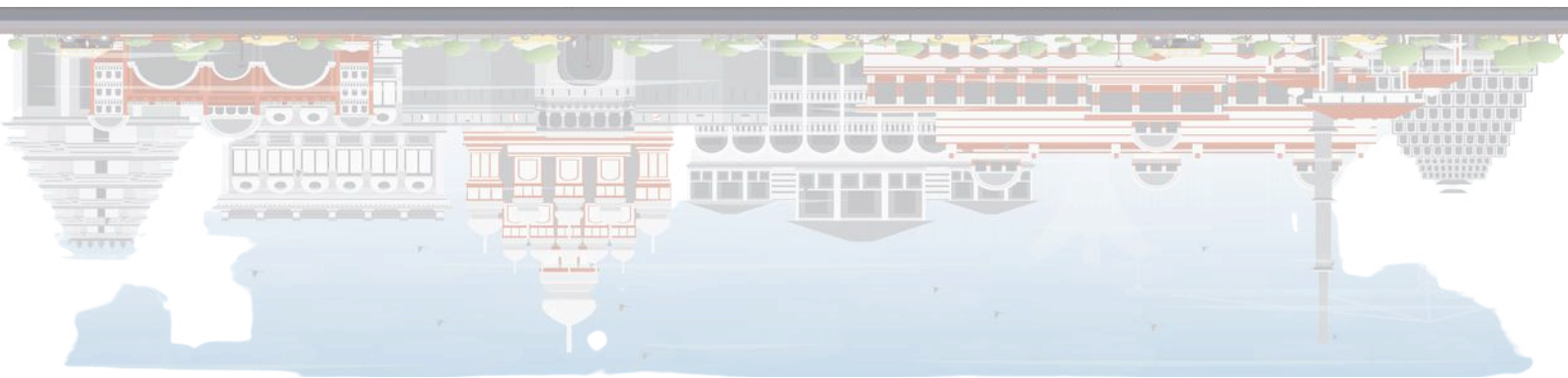




Road Safety Situation

Pune City

2021-2023



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Trend Analysis: Road Safety Situation In Pune City

(2021-2023)



Bloomberg
Philanthropies

Initiative for Global
Road Safety

Executive Summary

Road crashes are a preventable cause of fatalities and disability, ranking among the top 10 leading causes of fatalities in India. In Pune, road crash injuries pose a significant threat to the lives of the people. Since 2022, the Pune District has partnered with the Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS) to reduce the toll of fatalities and injuries resulting from road crashes. Good data that describe when, where, how, and why crashes occur are key to prevention efforts. With such data, targeted interventions can be implemented in high-risk areas as well as during specific days and times, and among vulnerable groups to maximise impact. This fact sheet summarises three years of data—from 2021 to 2023—on road safety in Pune City.

Methodology

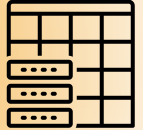
Data Collection, Cleaning and Data Analysis



Data Collection & Collation	Data Entry	Data Cleaning & Analysis
1. Meetings with DCP Traffic to request for FIRs	1. Scanned the FIR copies by BIGRS team.	1. Data Cleaning: Resolved issues in database by checking data for duplication, accuracy, and completeness.
2. Traffic office compiled FIR hard copies month-wise and police station-wise	2. Started receiving soft copies of FIRs from police stations.	2. Data Analysis: performed using a) Microsoft Excel to create tables & charts, and b) Quantum Geographic Information System (QGIS) to create heatmaps
3. BIGRS team reviewed copies to check for duplication	3. Data entry of fatal and Grievous injury crashes in Epi Info.	

Summary Statistics

Road crash information of Pune City from 2021- 2023



	2021	2022	2023	TOTAL
Total Fatal Crashes	229	310	350	889
Total Serious Injury Crashes	396	406	657	1459
Total Fatalities	243	327	370	940
Total Road Crash Serious Injuries	517	521	842	1880

Key Findings

Road crash fatalities on an increasing trend in 2022

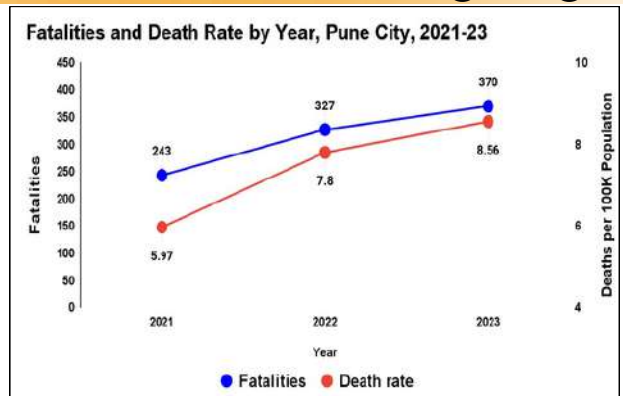


Alarming increase in road crash fatalities (+13%) and death rate (+10%) since 2022.

327 fatalities in 2022

370 fatalities in 2023

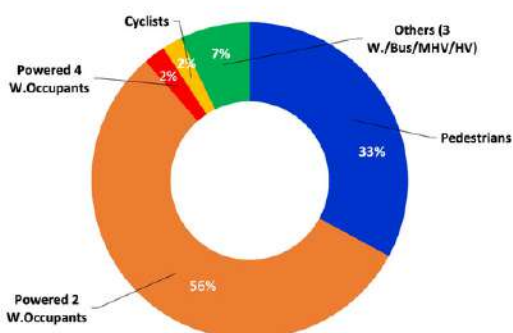
2021 is not considered for comparison since there were mobility restrictions due to the COVID-19 pandemic



Pedestrians and powered two-wheeler occupants are the most vulnerable



Percentage of Road Crash Fatalities by Road User Type in Pune City, 2021-23(N=940)



→MHV- Moderate-Heavy Vehicles (Tempo, Truck, Tractor, Lorry)
→HV- Heavy Vehicles (JCB, Construction Truck, Mixture)

Powered two-wheeler occupants and pedestrians comprise 89% of all fatalities from 2021 to 2023.

Pedestrians

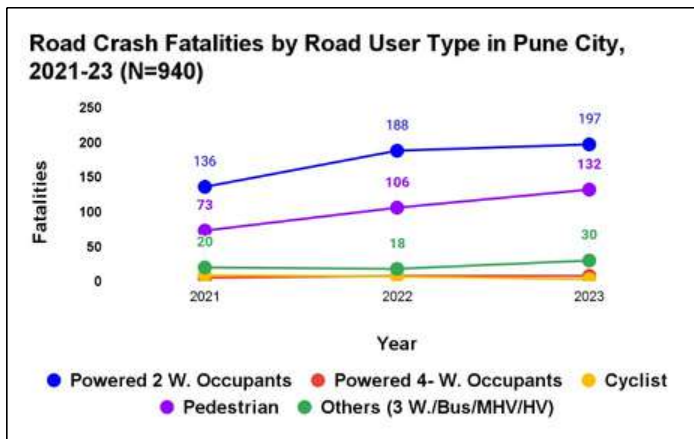
33%

Powered two-wheeler occupants

56%



Sharp increase in pedestrian and powered two-wheeler occupant fatalities since 2022



→MHV- Moderate-Heavy Vehicles (Tempo, Truck, Tractor, Lorry)
 →HV- Heavy Vehicles (JCB, Construction Truck, Mixture)

Rapid increase in pedestrian (+25%) and powered two-wheeler occupant (+5%) fatalities since 2022.

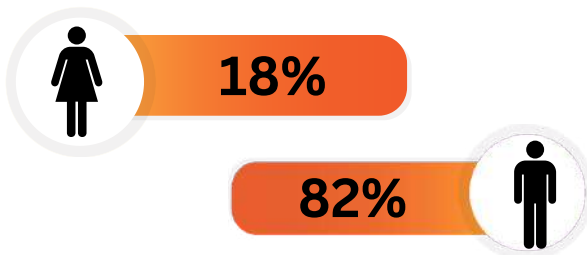
Pedestrians
 132 fatalities in 2023

Powered two-wheeler occupants
 197 fatalities in 2023

Decrease in road crash deaths in 2021 due to mobility restrictions during the COVID-19 pandemic

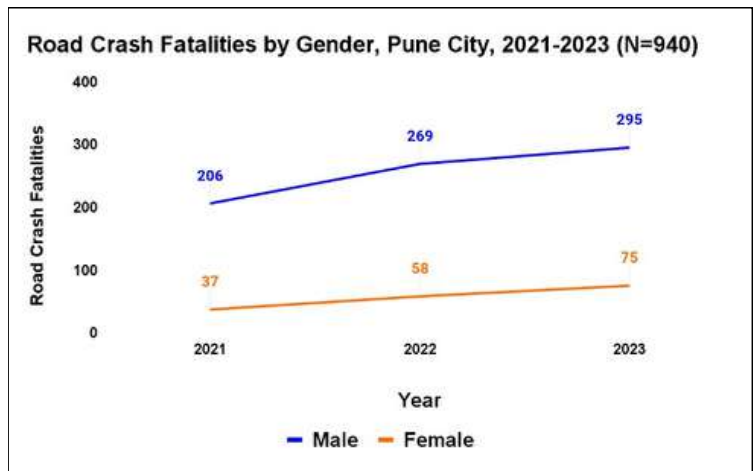


A majority (82%) of road crash fatalities involved men

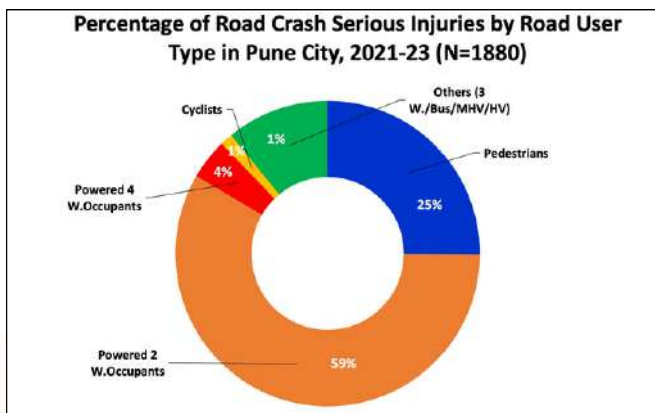


Since 2022, men and women fatalities have increased by 10% and 29%, respectively.

2021 is not considered for comparison since there were mobility restrictions due to the COVID-19 pandemic



Pedestrians and powered two-wheeler occupants were major victims of serious injury crashes



→MHV- Moderate-Heavy Vehicles (Tempo, Truck, Tractor, Lorry)
 →HV- Heavy Vehicles (JCB, Construction Truck, Mixture)

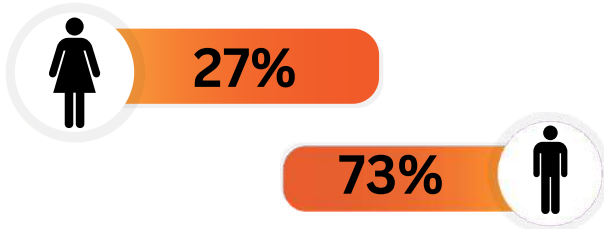
Powered two-wheeler occupants, pedestrians, and cyclists comprised 85% of all serious injuries from 2021-2023.



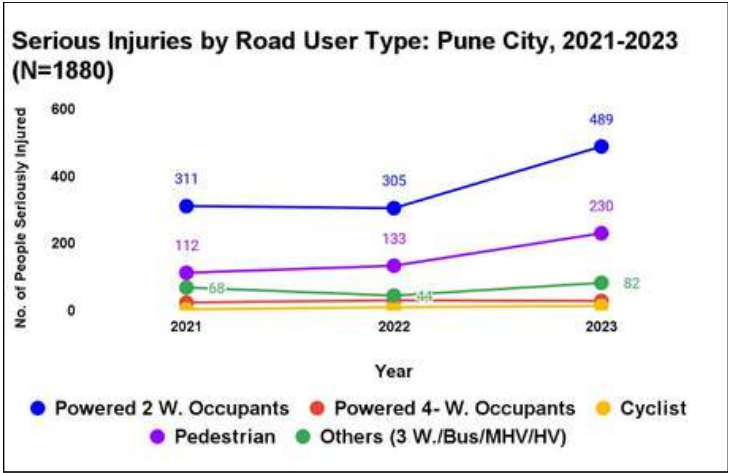
Spike in injuries to pedestrians and powered two-wheeler occupants following road crashes



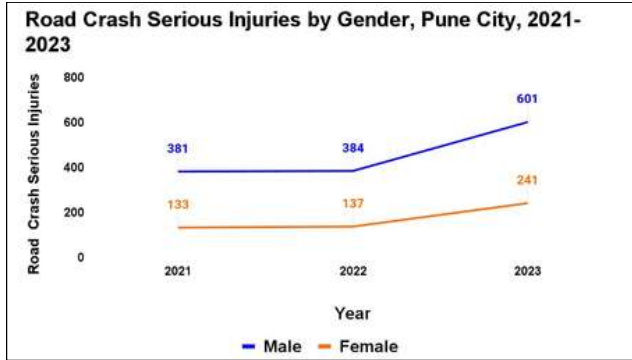
Rapid increase in serious injury crashes involving pedestrians (+73%) and powered two-wheeler occupants (+60%) since 2022.



2021 is not considered for comparison since there were mobility restrictions due to the COVID-19 pandemic



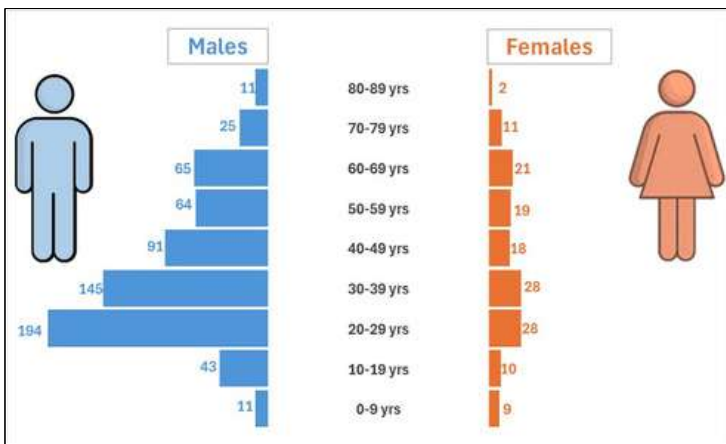
→MHV- Moderate-Heavy Vehicles (Tempo, Truck, Tractor, Lorry)
→HV- Heavy Vehicles (JCB, Construction Truck, Mixture)



Majority (73%) of crash victims with serious injuries involved men



Young men and women aged 20-39 years contributed the most to road crash fatalities and injuries



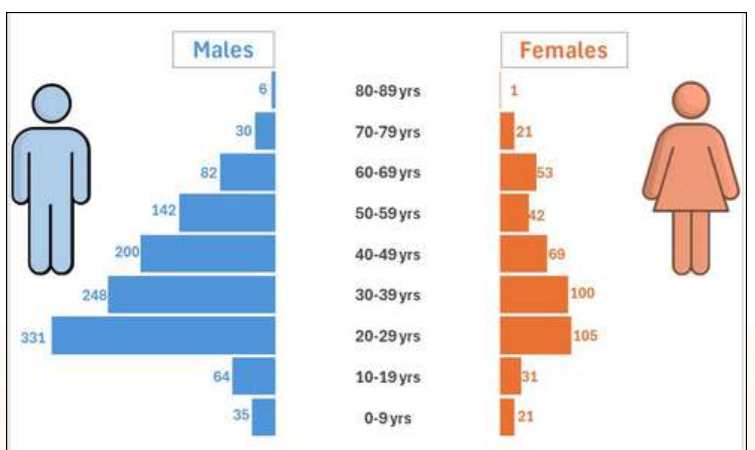
Road Crash Fatalities by Age and Gender (2021-2023) N = 795

In all fatalities, individuals aged 20 to 39 contributed the highest, with 52% men and 34% women.

15% of fatalities (N=145) did not have data on age, indicating an opportunity to improve the data collection.

Among all serious injuries, individuals aged 20 to 39 contributed the highest, with 51% for men and 46% for women.

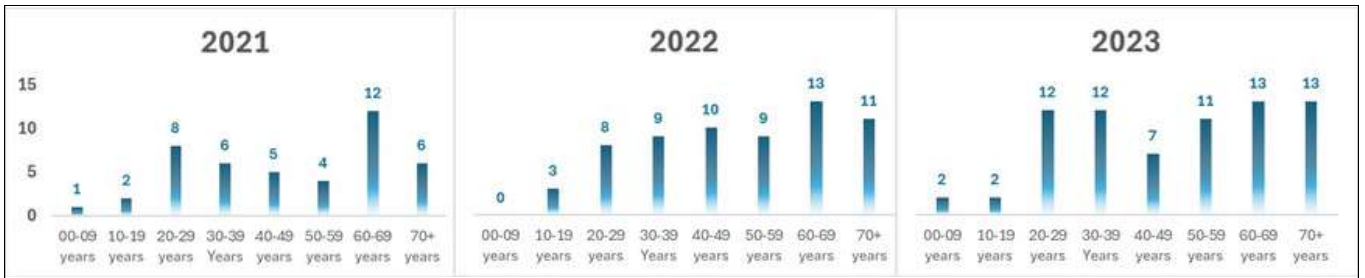
Of the total serious injuries reported, 16% (N=296) did not have data on age.



Road Crash Serious Injuries by Age and Gender (2021-2023) N = 1581

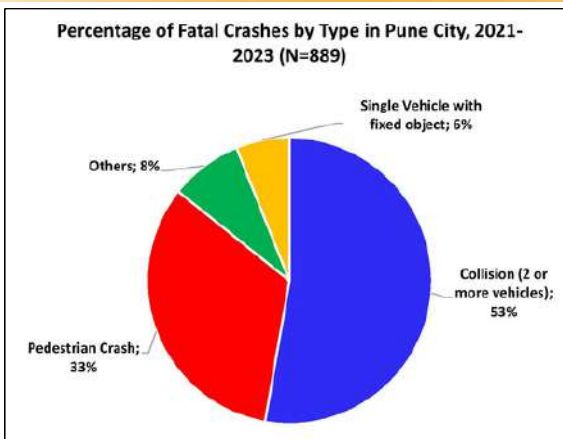


The elderly were the most vulnerable road users, experiencing a high mortality rate



- ➔ The death rate was consistently high in the 60-69 years age group in all three years.
- ➔ A rapid increase in the death rate in the 20-39 years age group since 2022.

One-third of fatal road crashes involved pedestrians



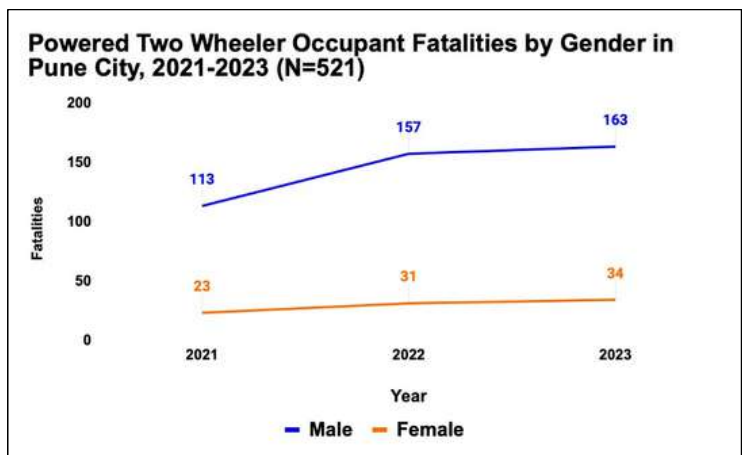
86% of fatal crashes involved two or more vehicles and pedestrians.



An upward trend in fatalities of powered two-wheeler occupants



- ➔ Alarming increase (~5%) in powered two-wheeler occupant fatalities since 2022.
- ➔ 83 % of powered two-wheeler occupants' fatalities involved men.



2021 is not considered for comparison since there were mobility restrictions due to the COVID-19 pandemic

Total Fatalities

521

Men

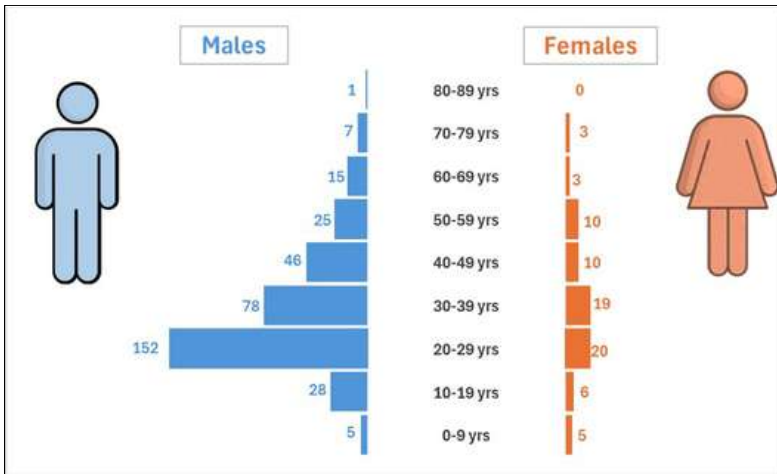
433

Women

88



Youth and young adults are victims of fatal powered two-wheeler crashes in Pune City



Powered Two-Wheeler Occupant Fatalities by Age and Gender: Pune City, 2021-2023 (N=521)

64% of powered two-wheeler occupant fatalities came from men in the 20-39 years age group.



17% of motorcyclist fatalities did not have age data.

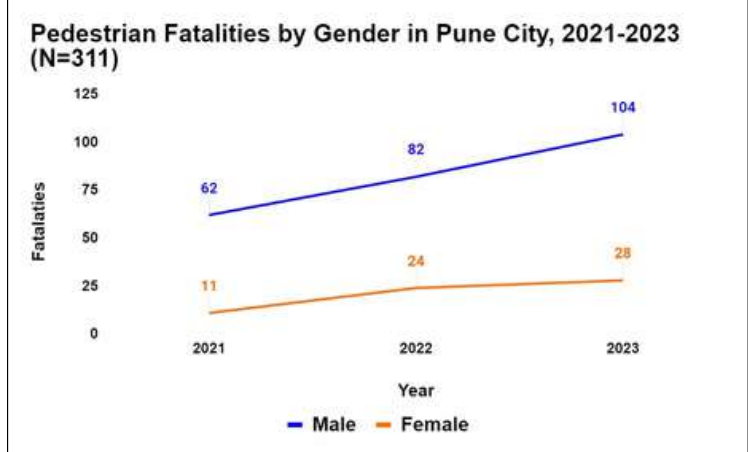


Over 25% increase in pedestrian fatalities from 2022 to 2023



Alarming increase (~25%) in pedestrian fatalities since 2022.

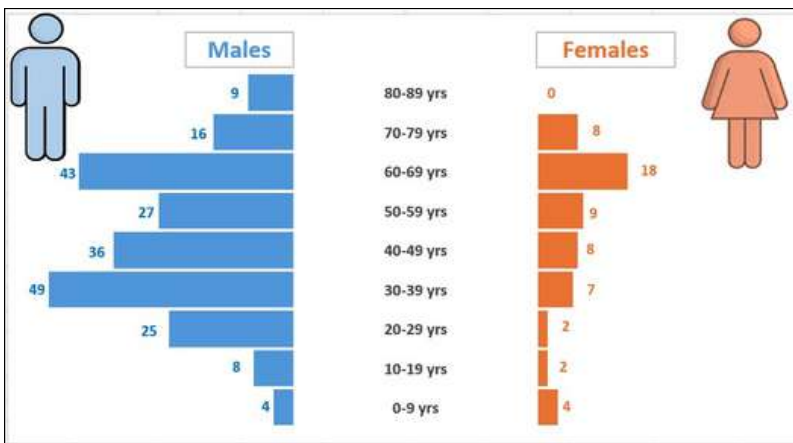
80 % pedestrian fatalities involved men.



2021 is not considered for comparison since there were mobility restrictions due to the COVID-19 pandemic



Pedestrians at risk, especially the elderly



Pedestrians Fatalities by Age and Gender: Pune City, 2021-2023 (N=275)

Pedestrians from the 30-69 years age group contributed more (63%) in fatalities from 2021-2023.



12% pedestrian victims did not have age data.





Young men caused the majority of fatal crashes in three years



71% of the drivers who caused fatal crashes were between 20-39 years.



98% of drivers who caused fatal crashes were men.



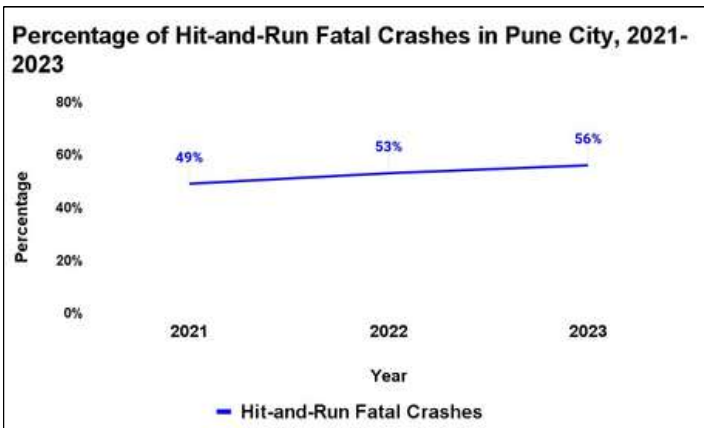
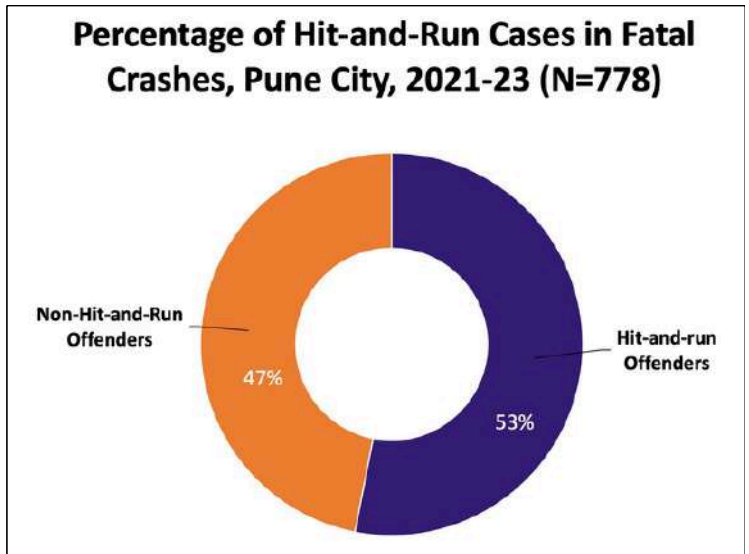
61% impacting drivers didn't have age data



Hit-and-Run cases on the rise in Pune City



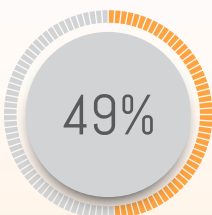
53% of the fatal crashes were hit-and-run from 2021 to 2023.



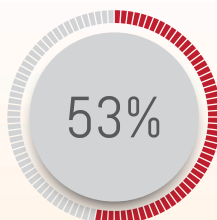
Increase (~6%) in hit-and-run fatal crashes since 2022.

Mostly pedestrians and powered two-wheeler occupants were victims of hit-and-runs in the three years.

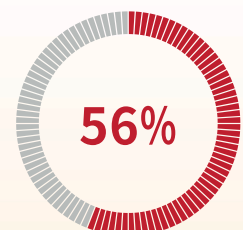
2021 is not considered for comparison since there were mobility restrictions due to the COVID-19 pandemic



2021



2022



2023

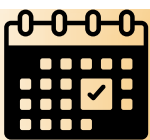


Crash Timeline: Fatal crashes by day and time of the week



Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Grand Total
00:00-01:00	17	12	12	14	16	14	16	101
01:00-02:00	1	4	4	4	6	11	8	38
02:00-03:00	3	5	4	6	4	4	7	33
03:00-04:00	2	4	3	2	3	2	3	19
04:00-05:00	3	2	4	7	4	1	3	24
05:00-06:00	4	1	2	5	2	2	0	16
06:00-07:00	2	5	7	5	5	3	4	31
07:00-08:00	8	4	4	4	4	5	3	32
08:00-09:00	5	4	1	3	3	6	3	25
09:00-10:00	8	5	2	4	7	4	4	34
10:00-11:00	7	4	6	5	4	5	2	33
11:00-12:00	8	2	4	6	2	3	7	32
12:00-13:00	5	9	4	4	5	3	5	35
13:00-14:00	5	4	4	5	3	4	4	29
14:00-15:00	3	4	2	6	9	3	5	32
15:00-16:00	5	4	6	5	4	5	0	29
16:00-17:00	8	3	4	5	3	5	3	31
17:00-18:00	8	5	6	6	9	3	3	40
18:00-19:00	7	6	4	7	4	3	7	38
19:00-20:00	5	5	2	10	4	3	7	36
20:00-21:00	9	8	11	8	11	10	10	67
21:00-22:00	6	3	7	4	3	6	2	31
22:00-23:00	6	11	11	4	7	5	10	54
23:00-24:00	5	4	5	7	4	13	10	48
Total	140	118	119	136	126	123	126	888

- ➔ Nearly 11% of fatal road crashes occur between midnight and 1 AM
- ➔ 34% of the total road crash fatalities recorded between 8 PM and 1 AM.
- ➔ The average of fatal crashes on weekends and weekdays was almost equal.



Fatal and Serious Injury (SI) crashes by month (2021-2023)



- ➔ Number of crashes almost consistent throughout the year



Who-Hit-Whom Matrix:

Impacting Vehicles v/s Victim Road Users



Impacting Vehicle	Victim Road User					
	Bicycle	Light Vehicle	Powered two wheeler	Others/ Single vehicle Crash	Pedestrian	Grand Total
Auto rickshaw	2	1	7	4	6	20
Bus	2	1	30	3	34	70
Powered two wheeler	0	9	39	81	58	187
Car/Jeep/Taxi/ Van/SUV	2	15	53	9	43	122
MHV	5	7	77	8	38	135
HV	4	3	100	8	36	151
Grand Total	15	36	306	113	215	685

→ MHV- Moderate-Heavy Vehicles (Tempo, Truck, Tractor, Lorry)

→ HV- Heavy Vehicles (JCB, Construction Truck, Mixture)

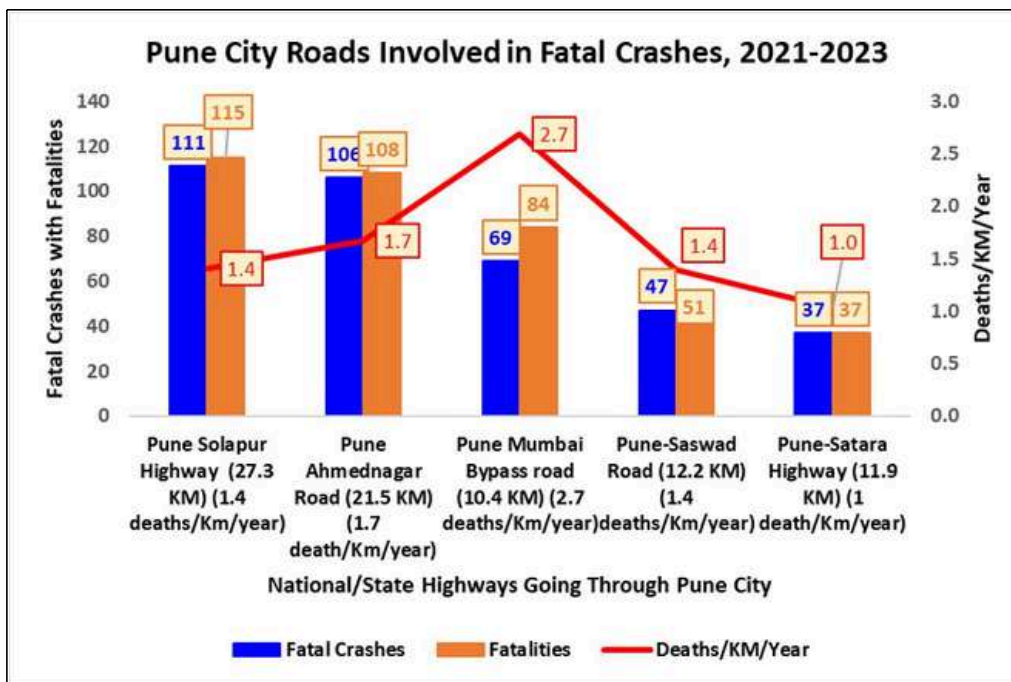
→ Light Vehicle includes Auto rickshaw, Car, Jeep, Taxi, Van, SUV

➔ **11% of the fatal crashes (n=100) were reported between heavy vehicles and powered two-wheelers.**

➔ **7% of the fatal crashes (n=58) were pedestrian crashes.**



Major roads involved in fatal road crashes



➔ **25% of fatal crashes were reported on- 1) Pune-Solapur Highway (13%) and 2) Pune-Ahmednagar road (12%).**

➔ **The Deaths/km/year were higher on the Pune-Mumbai Bypass Road (10.4Km - 2.7 Deaths/km/year) and Pune-Ahmednagar Road (21.5Km - 1.7 Deaths/km/year).**



Top 20 Black Spots in Pune City



What is a blackspot

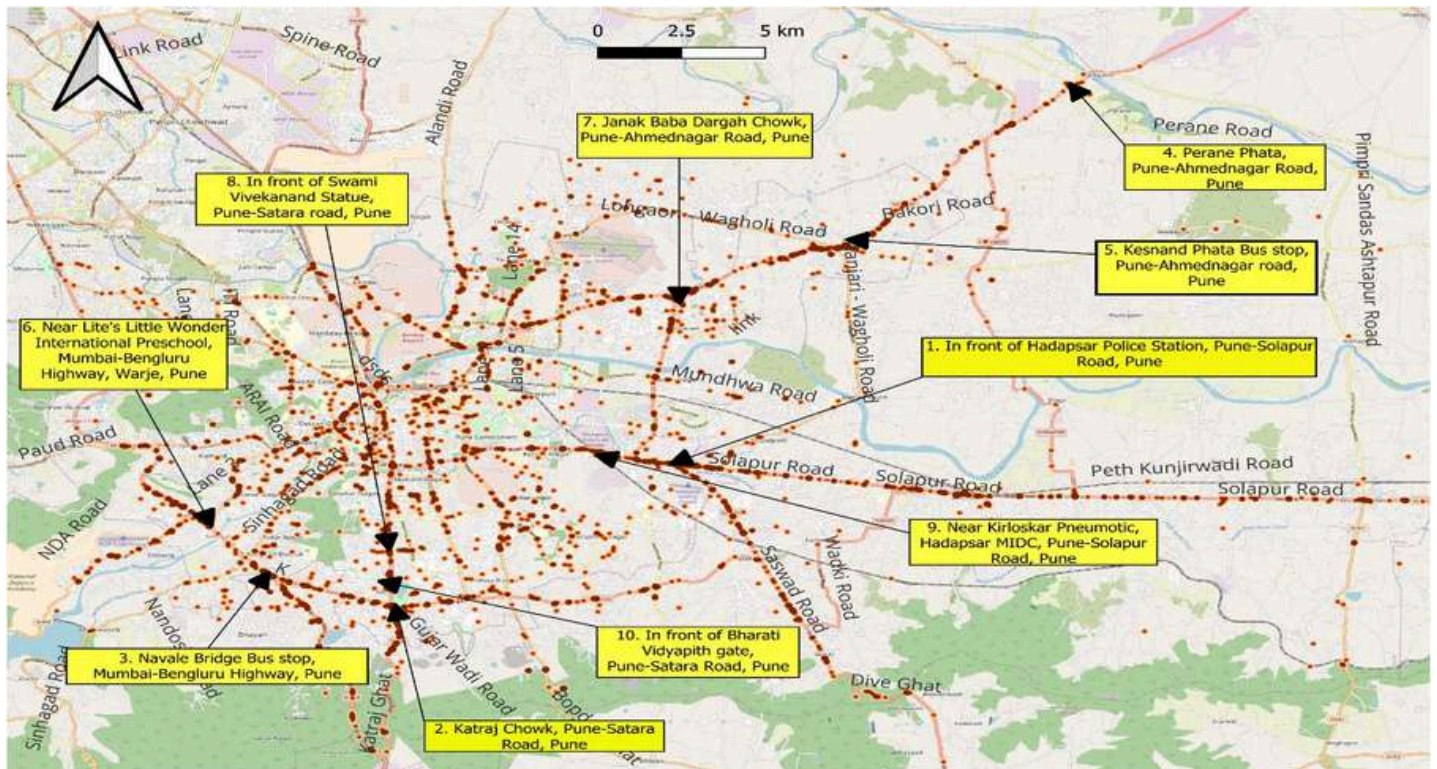
Definition of a Black Spot as per the Ministry of Road Transport and Highways (MoRTH)

" A road crash black spot is a stretch of about 500m in length in which either 5 road crashes (in all 3 years put together involving fatalities/Serious injuries) took place during the last 3 calendar years or 10 fatalities (in all 3 years put together) took place during the last 3 calendar years." As per the MORTH definition, we identified a list of the top 20 Black Spots in 500 m stretch in Pune City which were having 5 or more road crashes (including fatalities/Grievous Injuries) from 2021 to 2023.

Rank	Name of Location	Latitude	Longitude	No. of Fatal Crashes	No. of Serious Injury Crashes	Total FSIs (2021-2023)	No. of People died	No. of People Seriously Injured
1	In front of Hadapsar Police Station, Pune-Solapur Road, Pune	18.50054	73.93962	10	18	28	10	19
2	Katraj Chowk, Pune-Satara Road, Pune	18.44818	73.85842	8	11	19	9	14
3	Navale Bridge Bus stop, Mumbai-Bengluru Highway, Pune	18.46087	73.82215	14	4	18	14	6
4	Perane Phata, Pune-Ahmednagar Road, Pune	18.64114	74.05066	13	5	18	14	8
5	Kesnand Phata Bus stop, Pune-Ahmednagar road, Pune	18.58159	73.98678	10	6	16	11	10
6	Near Lite's Little Wonder International Preschool, Mumbai-Bengluru Highway, Warje, Pune	18.4863	73.79682	5	9	14	5	13
7	Janak Baba Dargah Chowk, Pune-Ahmednagar Road, Pune	18.56485	73.94356	5	9	14	5	10
8	In front of Swami Vivekananda Statue, Pune Satara road, Pune	18.47687	73.85675	2	12	14	2	8
9	Near Kirloskar Pneumatic, Hadapsar MIDC, Pune-Solapur Road, Pune	18.50526	73.91752	3	10	13	3	13
10	In front of Bharati Vidyapeeth gate, Pune-Satara Road, Pune	18.45729	73.8583	3	10	13	2	13
11	Uruli Kanchan Phata, Pune-Solapur road, Pune	18.48741	74.13338	7	5	12	7	5
12	In front of Tekawade Petrol Pump, near Akashwani, Pune-Solapur road, Pune	18.49937	73.94906	6	6	12	6	8
13	Near Shadal Baba Dargha Sharif, Deccan College Road, Pune	18.54433	73.87785	5	7	12	5	9
14	Swargate Chowk, Pune Satara Road, Pune	18.50054	73.85843	3	9	12	3	11
15	In front of HDFC Bank Narhe, Mumbai-Bengluru Highway, Pune	18.45388	73.82802	7	4	11	11	31
16	Tulapur Phata/Phulgaon Phata, Lonikand, Pune-Ahmednagar Road, Pune	18.62693	74.03384	10	1	11	10	3
17	In front of Hotel Gaurav, Katraj Ghat Road,Pune Satara Road, Pune	18.43192	73.85846	7	4	11	7	11
18	Kharadi Bypass Stop, Pune-Ahmednagar Road, Pune	18.56232	73.93933	6	5	11	6	9
19	Awalwadi chowk, Near Wagholi bus stand, Wagholi, Pune-Ahmednagar Road, Pune	18.58078	73.97853	6	5	11	6	7
20	In front of Tejomaya Lawns, Jalinderbaugh, Pune-Saswad Road, Pune	18.44644	73.97184	5	6	11	5	7



Heatmap of Pune City Fatal and Serious Injury Crashes (2021-2023)



Summary of Key Findings



- Upward trend in fatalities (+13%) and death rate (+10%); powered two-wheeler occupants, pedestrians, and cyclists make up 91% of fatalities
- Increase in pedestrian (+25%) & powered two-wheeler occupants (+5%) fatalities
- Most fatalities involved men aged 20-29, and the fatality rate was high for ages 60-69
- 53% of fatalities were hit-and-run crashes
- 34% of crashes occurred in the late evening (8PM to 1AM)
- 25% of fatal crashes occurred on Pune-Solapur Highway (13%) and Pune-Ahmednagar Road (12%)

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