

Original Article

Spatial Analysis of Crimes in Jalgaon City

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Abstract

The geography of crime was come in to existence from 1980s both in terms of research and the disposition to move into new kinds of topical areas (Relph Edward, 1976). Social ecology is the first School of Thought in geography of crime which emerged from the Chicago School of thought. Environmental criminology, developed in the tradition of crime geography. The term "Environmental criminology" was coined by the C. Ray Jeffery in 1971 in his book entitled "Crime Prevention through Environmental Design" (M. Andresen, Brantingham and Kinney, 2010). Both School of Thought retained the principles of the classical school of criminology, but the focus of environmental criminology was the environment or place over where the crime occurs. (Andresen, M., Brantingham, P., Kinney, 2010). The earlier attempts of crime analysis in this evolving phase of crime geography had an unclear boundary between the geography of crime and criminology. Geography of crime studies the spatial structure, environmental association, features of a place and their association with crime (Relph Edward, 1976). According to Georges (1978), "Geography of crime is defined as "the study of spatial manifestation of criminal acts. It is the study of social and cultural organization of criminal behavior in spatial perspective". Analyzing crime in Jalgaon City is of critical importance due to its unique position as a commercial, industrial, and transport hub in North Maharashtra. This paper try to unfold the spatial analysis of crime in Jalgaon city for the year 2020 to 2021.

Keywords: Crime, Spatial Analysis, Indian Penal Code (IPC), Crime Mapping, Jurisdiction.

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Submitted: 20 June 2024 **Revised:** 28 June 2024 **Accepted:** 10 July 2024 **Published:** 31 July 2024

INTRODUCTION

Research in the spatial distribution of crimes is a recent development in the discipline of geography. Some geographers in the western countries have studied the areal patterns and distribution of crimes. Unfortunately, this aspect of criminology has been ignored by the scholars of social sciences. All the technology and innovation are for the betterment of human community and for the wellbeing of their society. Crime is considered as a disturbance to the wellbeing. The traditional and age-old system of intelligence and criminal record maintenance has failed to live up to the requirements of the existing crime scenario. Geographic Information System (GIS) uses geography and computer-generated maps as an interface for integrating and accessing massive amounts of location-based information. GIS allows police personnel to plan effectively for emergency response, determine mitigation priorities, analyze historical events, and predict future events. Jalgaon is a city in western India, located in northern Maharashtra. It is most populous city in the Khandesh region. It is the

administrative headquarters of Jalgaon district. Jalgaon has a municipal corporation, and had 460,228 residents of which 240,590 are males while 219,638 are females as per report released by Census India 2011. To maintain the law and order in the Jalgaon city, the Jalgaon District Police administration has setup 6 police station viz. Zilla Peth Police Station, Jalgaon City Police Station, Shani Peth Police Station, Jalgaon Taluka Police Station, M.I.D.C. Police Station and Ramanand Police Station.

Study Area:

Jalgaon District is located in the north-west region of the state of Maharashtra. It is bounded by Satpuda mountain ranges in the north, Ajanta Mountain ranges in the south. Jalgaon is rich in volcanic soil which is well suited for cotton production. It is a major business center for tea, gold, pulses, cotton and bananas. Languages spoken are Marathi, Ahirani, Hindi, and English. Jalgaon District receives an average rainfall of about 690 mm and the temperature varies from 10 to 48 degree Celsius.

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	Website: https://rlgjaar.com	
	Website: https://www.doi.org	How to cite this article: Gaware, R. S. (2024). Spatial Analysis of Crimes in Jalgaon City. Royal International Global Journal of Advance and Applied Research, 1(1), 31-45. https://doi.org/10.5281/zenodo.18711057
DOI: 10.5281/zenodo.18711057		

Jalgaon has got pretty diverse climate. It is exceptionally hot and dry during summer with temperature reaching as high as 45 degrees Celsius. Jalgaon receives about 700 mm rainfall during monsoons, which is followed by pleasant temperature in winter. The principal natural feature is the Tapi River. Unlike the rest of the Deccan, whose rivers rise in the Western Ghats and flow eastward to the Bay of Bengal, the Tapi flows westward from headwaters in eastern Maharashtra to empty into the Arabian Sea. The Tapi receives thirteen principal tributaries in its course through Khandesh. None of the rivers is navigable, and the Tapi flows in a deep bed which historically made it difficult to use for irrigation. Most of Khandesh lies south of the Tapi, and is drained by its tributaries the Girna, Bori and Panjhra.

Geographical Extension and Location Details of Jalgaon District

1. Jalgaon District

Jalgaon district is located in the central part of the India as well as in north-west region of Maharashtra. This area often referred to as "Khandesh."

- **Latitudinal Extent** : 20⁰ 00' N to 21⁰ 25' N
- **Longitudinal Extent** : 74⁰ 55' E to 76⁰ 28' E
- **Total Area** : Approximately 11,765 sq. km
- **Elevation** : 202 meters (663 ft)
- **Number of Villages** : 1,513
- **Number of Towns** : 20
- **Population** : 4,229,917 (as per Census 2011)
- **Boundaries:**
 - **North:** Satpura Mountain Ranges and Madhya

Pradesh State.

- **West:** Dhule District.
- **Outh-West:** Nashik District.
- **Major urban centers:** Jalgaon, Bhusawal, Kandari, Varangaon, Nimbore Bk., Fekari, Chopda, Pachora, Chalisgaon, Amalner, Yawal, Faizpur, Raver, Savada, Parola, Erandol, Dharangaon.
- **Major crops:** Wheat, millet, lime, groundnut, cotton, sugarcane
- **Major rivers:** Tapi, Girna, Waghur.

2. Geographical Extension and Location Details of Jalgaon City:

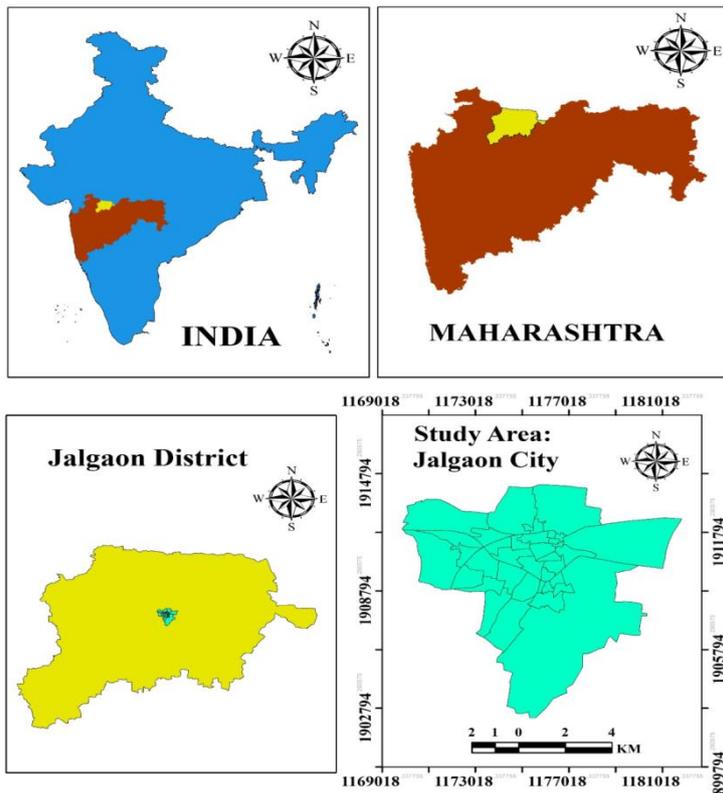
Jalgaon city is the administrative headquarters of the district and is situated on the northern Deccan Plateau.

- **Latitude:** 21.0077⁰ N
- **Longitude:** 75.5626⁰ E
- **Average Elevation:** 209 meters (686 feet) above sea level.
- **Area:** Approximately **68 to 98 sq. km** (Municipal Corporation limits).

Objectives of the Study:

The main purpose of this research is to analyze the spatial arrangement of criminal activities in Jalgaon City. The specific objectives are:

- **To analyze the temporal trends** of crime in Jalgaon City during the study period (2020 to 2021).
- **To examine the spatial distribution** of various types of crimes (e.g., property crime, violent crime) across different Police Station limits or municipal wards.



Hypothesis:

A hypothesis is a tentative statement that to test data collected.

- **Hypothesis 1 (Spatial Variation):** Crime is not randomly distributed but is clustered in specific zones of Jalgaon City.

Incidents of Crimes in the Jurisdiction of Jalgaon Taluka Police Station:

This analysis provides a detailed interpretation of the crime statistics for the Jalgaon Taluka Police Station for the years 2020 and 2021. The data presents a temporal comparison of criminal incidents, categorized by offence type, revealing shifts in criminal behavior and police reporting during this period.

Incidents of Crimes in the Jurisdiction of Jalgaon Taluka Police Station				
Type of Crimes	Number of Incidents of Crimes In 2020	Percentage of Incidents of Crimes In 2020	Number of Incidents of Crimes In 2021	Percentage of Incidents of Crimes In 2020
Murder	3	0.94	3	1.55
Attempt to Murder	6	2.83	1	0.52
Rape	1	0.47	2	1.03
Molestation	2	0.94	5	2.58
Burglary	13	6.13	18	9.28
Chain Snatching	6	2.83	9	4.64
Theft	49	23.11	39	20.10
Abduct	16	7.55	20	10.31
Attempt to Suicide	1	0.47	0	0.00
Death in Accidents	5	2.36	8	4.12
Sudden Death	111	52.36	89	45.88
TOTAL	212	100	194	100

Source: Police Station Data 2023

Overview of Aggregate Trends

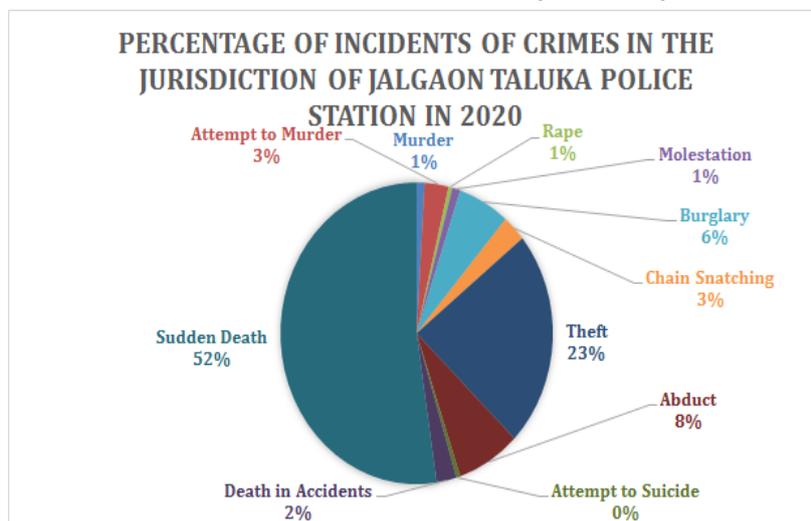
The total number of recorded incidents in the jurisdiction of the Jalgaon Taluka Police Station shows a decline of 8.49%, falling from 212 incidents in 2020 to 194 incidents in 2021. Despite this overall reduction, the composition of crimes has shifted, with certain categories such as property crimes (specifically burglary and chain snatching) and crimes against women showing an upward trend, contrasting with a reduction in theft and sudden deaths.

Categorical Analysis

1. Offences against Property

Property-related offences show a divergent trend between *theft* and more aggressive forms of acquisition like *burglary* and *chain snatching*.

- **Theft:** This remains the second most dominant category after "Sudden Death." However, it witnessed a significant decline. Incidents dropped from **49 (23.11%)** in 2020 to **39 (20.10%)** in 2021. This reduction of approximately 20% suggests either improved surveillance or a shift in criminal focus.
- **Burglary and Chain Snatching:** Conversely, these categories saw a sharp increase.
 - **Burglary** incidents rose from **13** to **18**, increasing their share of total crime from **6.13%** to **9.28%**.
 - **Chain Snatching** increased by 50%, rising from **6** to **9** incidents.
 - *Interpretation:* The simultaneous drop in simple theft and rise in burglary/chain snatching may indicate a shift towards more opportunistic or high-value targets in 2021 compared to 2020.



2. **Offences Against the Human Body**

The data regarding violent crimes presents a mixed scenario.

- **Murder & Attempt to Murder:** The incidence of Murder remained static at 3 cases for both years, indicating a stable but low rate of homicide (approx. 1–1.5% of total cases). However, Attempt to Murder saw a drastic reduction from 6 cases (2.83%) in 2020 to just 1 case (0.52%) in 2021.
- **Crimes against Women (Rape & Molestation):** There is a concerning upward trend in registered crimes against women.
 - Rape cases doubled from 1 to 2.
 - **Molestation** cases increased from 2 to 5.
 - While the absolute numbers are low, the percentage increase is significant, suggesting either a rise in occurrence or an increase in the reporting of such sensitive issues in 2021.
- **Abduction:** Kidnapping/Abduction cases saw a 25% increase, rising from 16 (7.55%) to 20 (10.31%). This is a substantial rise, making it the third most frequent crime category in 2021.

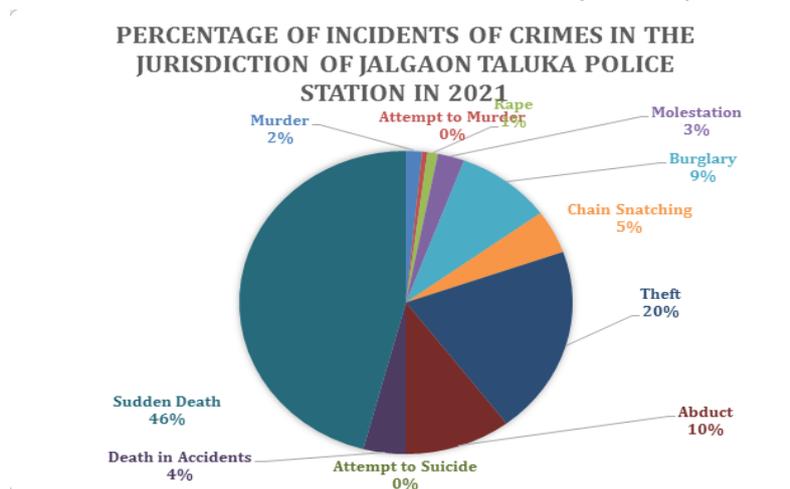
3. **Accidental and Sudden Deaths (ADR)**

A unique feature of this dataset is the inclusion of "Sudden Death" and "Death in Accidents," which typically fall under Accidental Death Reports (ADR) rather than Indian Penal Code (IPC) crimes, yet they dominate the station's records.

- **Sudden Death:** This is the single largest category, accounting for **52.36% (111 cases)** in 2020 and **45.88% (89 cases)** in 2021. The high volume suggests that a significant portion of the police station's resources is dedicated to investigating unnatural or unexplained deaths rather than active criminal enforcement.
- **Death in Accidents:** These incidents rose from **5** to **8**, nearly doubling in percentage share from 2.36% to 4.12%.

Critical Synthesis

1. **The "Lockdown Effect" Hypothesis:** The year 2020 was heavily marked by COVID-19 lockdowns. The higher number of **Thefts (49)** in 2020 compared to 2021 might be attributed to economic distress during the pandemic. However, the lower numbers of street crimes like Chain Snatching (6) in 2020 could be a result of restricted mobility and fewer people on the streets. As restrictions eased in 2021, street crimes like chain snatching and accidents naturally rebounded.
2. **Resource Allocation:** With nearly 46–52% of all recorded incidents being "Sudden Deaths," the data indicates that the Jalgaon Taluka Police Station functions heavily as a coroner's investigator. From a criminological perspective, excluding "Sudden Death" would reveal that Theft and Abduction are the primary *criminal* challenges in this jurisdiction.



Key Observations from the Graph:

- **Sudden Death** is visually the most dominant category, far exceeding all other types of incidents, which highlights the non-criminal workload of the station.
- **Theft** shows a noticeable decrease in 2021 compared to 2020.
- **Burglary** and **Abduction** show visible increases in the orange bars (2021), confirming the upward trend mentioned in the analysis.

Conclusion

The data from 2020 to 2021 for Jalgaon Taluka Police Station reveals a transition period. While the overall volume of recorded incidents decreased, the *intensity* of specific crimes increased. The shift from simple theft to more intrusive crimes like burglary, coupled with the rise in crimes against women and abduction, points to a changing criminal landscape that requires targeted policing strategies beyond general surveillance.

Incidents of Crimes in the Jurisdiction of Ramanand Police Station:

Analysis of the crime statistics for the Ramanand Police Station for the years 2020 and 2021, along with the visual representation is given here.

Incidents of Crimes in the Jurisdiction of Ramanand Police Station				
Type of Crimes	Number of Incidents of Crimes in the Jurisdiction of Ramanand Police Station In 2020	Percentage of Incidents of Crimes in the Jurisdiction of Ramanand Police Station In 2020	Number of Incidents of Crimes in the Jurisdiction of Ramanand Police Station In 2021	Percentage of Incidents of Crimes in the Jurisdiction of Ramanand Police Station In 2020
Murder	2	2.13	1	1.22
Attempt to Murder	7	7.45	4	4.88
Rape	3	3.19	2	2.44
Molestation	3	3.19	13	15.85
Burglary	15	15.96	15	18.29
Chain Snatching	4	4.26	5	6.10
Theft	47	50.00	26	31.71
Abduct	10	10.64	12	14.63
Attempt to Suicide	0	0.00	0	0.00
Death in Accidents	3	3.19	4	4.88
Sudden Death	0	0	0	0
TOTAL	94	100	82	100

Source: Police Station Data 2023

Overview of Aggregate Trends

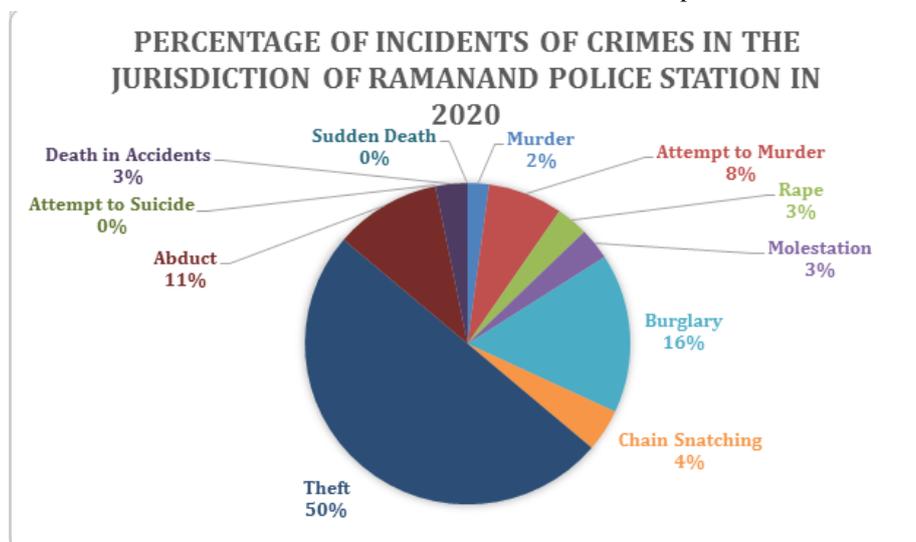
The jurisdiction of Ramanand Police Station witnessed a notable decline of 12.77% in total recorded incidents, dropping from 94 incidents in 2020 to 82 incidents in 2021. Unlike the previous dataset (Jalgaon Taluka), this station reports zero incidents of "Sudden Death," indicating that the data reflects strictly criminal and accidental IPC offences. The most significant statistical movement is the sharp reduction in theft, offset by a worrying surge in crimes against women, specifically molestation.

Categorical Analysis

1. Offences against Property

Property crimes constitute the bulk of the station's workload, though the sub-categories show divergent trends.

- **Theft:** In 2020, theft was the single most dominant crime, accounting for 50% of all cases (47 incidents). However, in 2021, this dropped dramatically to 26 incidents (31.71%). This 44.6% reduction is substantial and suggests effective containment strategies or a significant change in reporting behavior.
- **Burglary:** This category remained completely static in absolute numbers (15 cases in both years). However, due to the drop in total crime, its relative share of the crime burden increased from 15.96% to 18.29%.
- **Chain Snatching:** A marginal increase was observed, rising from 4 to 5 cases. While the number is small, the upward tick aligns with broader urban trends where street crimes rebounded post-lockdown.



2. Offences Against the Human Body

This category reveals the most volatile and concerning shifts in the dataset.

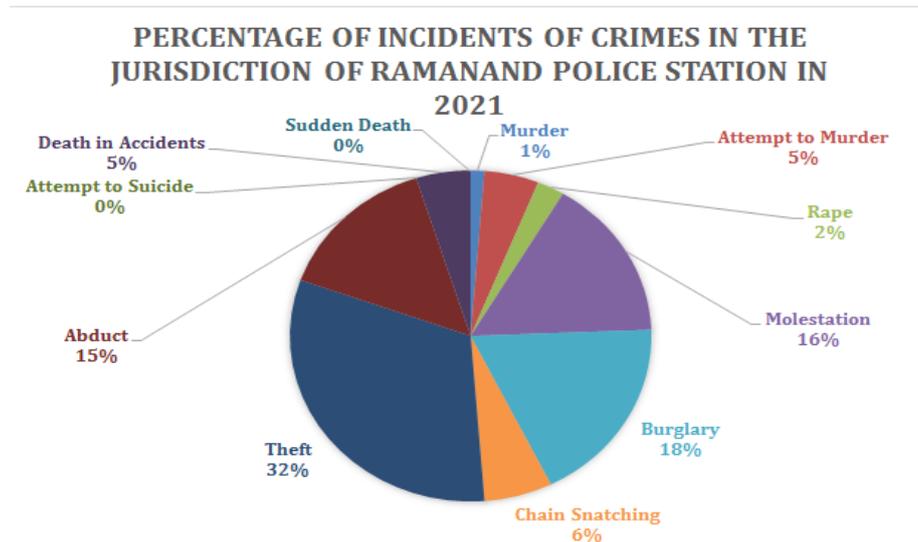
- **Violent Crimes (Murder & Attempt to Murder):** There was a general de-escalation in severe violence.
 - Murder cases halved from 2 to 1.

- **Attempt to Murder** cases nearly halved, dropping from 7 (7.45%) to 4 (4.88%).
- **Interpretation:** The reduction in life-threatening violence is a positive indicator of law and order maintenance in the area.

- **Crimes against Women (Molestation & Rape):** This is the most critical area of concern in the 2021 data.
- Molestation cases skyrocketed by 333%, rising from just 3 incidents in 2020 to 13 incidents in 2021. This moved molestation from a minor category to the third most frequent crime type.
- Rape showed a slight decline from 3 to 2 cases.
- *Sociological Note:* Such a drastic spike in molestation figures often points to two

possibilities: a genuine surge in street harassment as public spaces reopened in 2021, or a successful policing initiative that encouraged more victims to come forward and register complaints.

- **Abduction:** Kidnapping cases rose by 20%, from 10 to 12. It remains a significant portion of the crime profile, accounting for nearly 15% of all cases in 2021.



3. Accidental Deaths

- **Death in Accidents:** These numbers remained low but showed a slight increase from 3 to 4.
- **Attempt to Suicide:** Zero cases were recorded in both years, suggesting such incidents were either not present or diverted to healthcare interventions rather than police records.

Visual Representation:

The bar graph above visually contrasts the two years. Note the tall blue bar for "Theft" in 2020 shrinking in 2021 (orange), and the corresponding spike in the orange bar for "Molestation."

Critical Synthesis

1. **The "Reporting Paradox" in Women's Safety:** The standout statistic is the surge in Molestation (3.19% to 15.85%). In criminology, a sudden spike of this magnitude rarely reflects a sudden "wave" of new criminals but often reflects a change in *reporting*. It is possible that in 2020 (lockdown), reporting such crimes was difficult, or in 2021, the police station undertook specific drives (like "Damini Pathaks") that led to higher registration of cases.
2. **The Decline of Theft:** The sharp drop in theft (from 47 to 26) is the primary driver for the overall decrease in crime. If Ramanand Police

Station covers commercial areas, the reopening of markets in 2021 usually *increases* theft. The fact that it *decreased* warrants investigation into whether surveillance (CCTV) coverage improved in this jurisdiction during 2021.

3. **Static Burglary Rates:** The fact that burglary numbers remained exactly the same (15) suggests a consistent, perhaps organized, level of property crime activity that was unaffected by the changing external conditions of the pandemic.

Conclusion

The crime profile of Ramanand Police Station shifted significantly between 2020 and 2021. The station moved from dealing primarily with Theft (50% of workload) in 2020 to a more complex mix in 2021, where Molestation, Abduction, and Burglary combined to form the majority of challenges. The data strongly suggests a need to prioritize women's safety and anti-trafficking measures, given the rising trends in molestation and abduction.

Incidents of Crimes in the Jurisdiction of Jilha Peth Police Station:

Let's analysis of the crime statistics for the Jilha Peth Police Station for the years 2020 and 2021, along with the visual representation.

Incidents of Crimes in the Jurisdiction of Jilha Peth Police Station				
Type of Crimes	Number of Incidents of Crimes in the Jurisdiction of Jilha Peth Police Station In 2020	Percentage of Incidents of Crimes in the Jurisdiction of Jilha Peth Police Station In 2020	Number of Incidents of Crimes in the Jurisdiction of Jilha Peth Police Station In 2021	Percentage of Incidents of Crimes in the Jurisdiction of Jilha Peth Police Station In 2021
Murder	0	0.00	1	0.74
Attempt to Murder	3	3.95	0	0.00
Rape	1	1.32	1	0.74
Molestation	9	11.84	4	2.96
Burglary	0	0.00	12	8.89
Chain Snatching	2	2.63	5	3.70
Theft	55	72.37	98	72.59
Abduct	3	3.95	2	1.48
Attempt to Suicide	1	1.32	1	0.74
Death in Accidents	1	1.32	9	6.67
Sudden Death	1	1.32	2	1.48
TOTAL	76	100	135	100

Source: Police Station Data 2023

Overview of Aggregate Trends

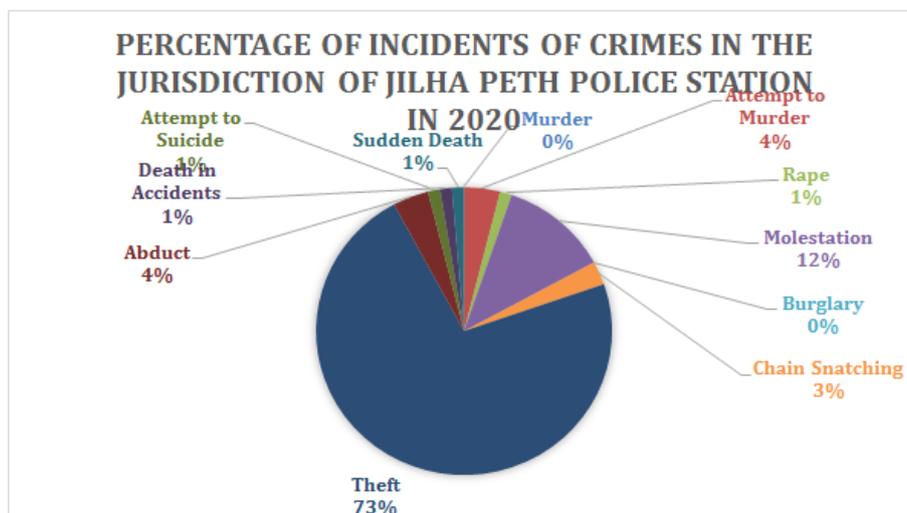
The data for Jilha Peth Police Station presents a starkly different trend compared to the Jalgaon Taluka and Ramanand stations. While the other jurisdictions saw decreases or stability, Jilha Peth witnessed a **massive surge of 77.6%** in total recorded incidents, rising from **76** in 2020 to **135** in 2021. This sharp incline suggests that the lifting of lockdown restrictions had a profound impact on this specific jurisdiction, likely due to it being a hub of commercial or high-mobility activity.

Categorical Analysis

1. Offences against Property

Property crimes are the overwhelming driver of crime statistics in this jurisdiction, specifically focusing on opportunistic theft.

- **Theft:** This category is statistically dominant, accounting for over 72% of all crimes in both years. The absolute numbers nearly doubled, jumping from 55 incidents in 2020 to 98 in 2021. The consistent percentage share (72.37% vs 72.59%) despite the volume increase indicates that theft scales linearly with the general activity level in this area.
- **Burglary:** This category highlights a significant anomaly. In 2020, there were zero recorded burglaries. In 2021, this spiked to 12 cases (8.89%). Such a "zero-to-peak" trend suggests either a change in crime classification recording or the entry of a specific organized group into the area post-lockdown.
- **Chain Snatching:** Incidents more than doubled from 2 to 5, mirroring the broader urban trend of rising street crime as public mobility resumed.



2. Offences Against the Human Body

Unlike property crimes, violent crimes and crimes against the body showed mixed, often declining trends.

- **Crimes Against Women (Molestation & Rape):**
 - Molestation cases saw a significant decline of over 50%, dropping from 9 cases (11.84%) in 2020 to 4 cases (2.96%) in 2021. This is an

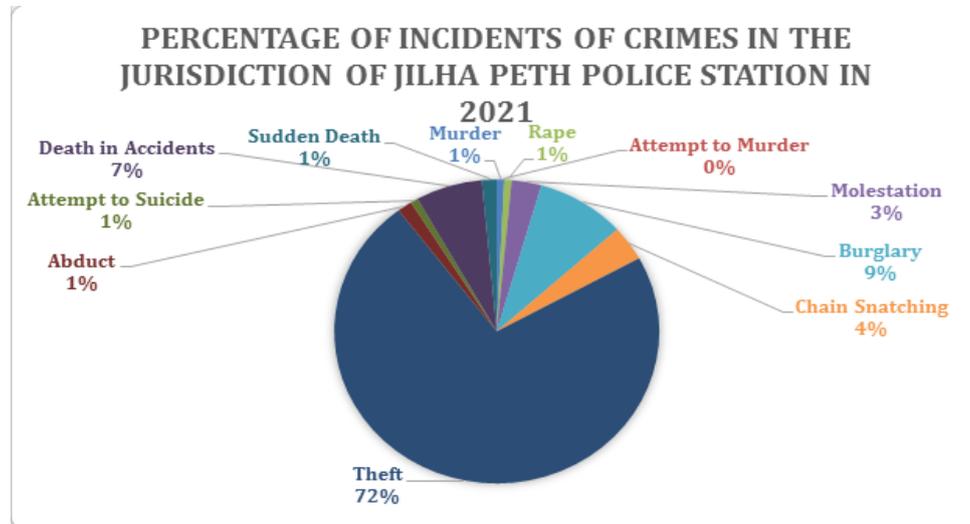
inverse trend compared to Ramanand Police Station (which saw a spike).

- Rape incidents remained low and stable at 1 case per year.
- **Violent Crimes:**
- **Attempt to Murder** cases dropped from 3 to 0.
- **Murder** rose slightly from 0 to 1.
- *Interpretation:* The data indicates that while property crime skyrocketed, interpersonal violence and crimes against women actually

decreased or stabilized, suggesting the surge in 2021 was driven purely by economic or acquisitive motives.

3. Accidental Deaths

- **Death in Accidents:** There was a **nine-fold increase** in accidental deaths, rising from 1 in 2020 to 9 in 2021. This provides strong evidence of increased vehicular traffic and mobility in the Jilha Peth jurisdiction during 2021.



Critical Synthesis

1. **The "Commercial Hub" Hypothesis:** The overwhelming dominance of Theft (98 cases) and the sudden appearance of Burglary (12 cases) strongly suggest that Jilha Peth covers a commercial or market-heavy zone. During the 2020 lockdown, shops were closed and streets empty, suppressing theft. In 2021, as markets reopened, "opportunity crimes" like shoplifting, vehicle theft, and pocket-picking likely surged.
2. **Inverse Trends in Women's Safety:** It is academically notable that while Ramanand Police Station saw a 333% *increase* in molestation, Jilha Peth saw a 55% *decrease*. This spatial disparity warrants further investigation—perhaps Jilha Peth had better patrolling, or the nature of crowds in this area (e.g., transit vs. residential) differs from Ramanand.
3. **The "Zero Burglary" Anomaly:** The lack of a single burglary in 2020 is statistically rare for an urban police station. This raises questions about whether 2020 burglary attempts were misclassified as "Theft" or if the lockdown genuinely created a "fortress effect" that completely deterred break-ins in this specific area.

Visual Representation:

The bar graph highlights the massive orange bar for "Theft," which dwarfs all other categories,

visually reinforcing the analysis that this station's primary challenge is property crime.

Conclusion

The Jilha Peth Police Station data illustrates a clear "post-lockdown rebound." The dramatic rise in total cases is almost entirely attributable to the resurgence of Theft and the emergence of Burglary. Unlike other stations where the profile became more complex with social crimes, Jilha Peth's challenges in 2021 were predominantly related to property protection and traffic safety.

Incidents of Crimes in the Jurisdiction of Shahar Police Station:

Let's explore detailed analysis of the crime statistics for the Shahar Police Station (City Police Station) for the years 2020 and 2021, along with the visual representation.

Overview of Aggregate Trends

The data for Shahar Police Station exhibits a significant upward trajectory in total crime volume. The total incidents rose from 95 in 2020 to 134 in 2021, marking a 41.05% increase. This pattern mirrors the trend observed in the Jilha Peth Police Station, suggesting that both stations cover the core urban and commercial sectors of the city, which experienced a sharp rebound in activity—and consequently crime—following the relaxation of pandemic restrictions in 2021.

Incidents of Crimes in the Jurisdiction of Shahar Police Station				
Type of Crimes	Number of Incidents of Crimes in the Jurisdiction of Shahar Police Station In 2020	Percentage of Incidents of Crimes in the Jurisdiction of Shahar Police Station In 2020	Number of Incidents of Crimes in the Jurisdiction of Shahar Police Station In 2021	Percentage of Incidents of Crimes in the Jurisdiction of Shahar Police Station In 2021
Murder	3	3.16	5	3.73
Attempt to Murder	5	5.26	2	1.49
Rape	1	1.05	2	1.49
Molestation	2	2.11	3	2.24
Burglary	11	11.58	10	7.46
Chain Snatching	5	5.26	9	6.72
Theft	59	62.11	87	64.93
Abduct	6	6.32	9	6.72
Attempt to Suicide	1	1.05	2	1.49
Death in Accidents	2	2.11	3	2.24
Sudden Death	0	0.00	2	1.49
TOTAL	95	100	134	100

Source: Police Station Data 2023

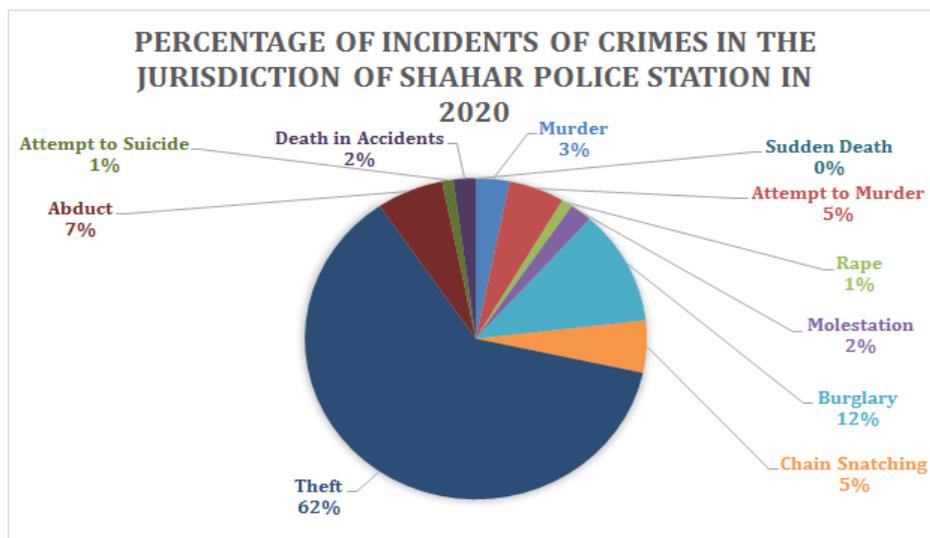
Categorical Analysis

1. Offences against Property

Property-related offences are the defining characteristic of crime in this jurisdiction, with "Theft" acting as the primary driver of the statistical increase.

- **Theft:** This single category dominates the dataset, accounting for 62.11% of all crimes in 2020 and 64.93% in 2021. The absolute numbers jumped drastically from 59 to 87 incidents. The consistency of its high percentage share indicates that theft is endemic to this specific area, likely due to high commercial density.

- **Chain Snatching:** There was a notable 80% increase in chain snatching, rising from 5 to 9 cases. This is a classic indicator of increased street mobility; as pedestrian traffic returned to the city center in 2021, opportunistic street crimes rebounded.
- **Burglary:** Interestingly, burglary remained relatively static, showing a slight decline from 11 to 10 cases. While the absolute number is stable, its percentage share of total crime dropped (11.58% to 7.46%) simply because other crimes (like theft) grew so rapidly.



2. Offences Against the Human Body

The trends in violent crime present a complex picture of escalation in severity but mixed results in frequency.

- **Murder vs. Attempt to Murder:** There appears to be a shift in outcome severity.
 - Murder cases increased from 3 to 5.
 - Attempt to Murder cases decreased from 5 to 2.
 - *Interpretation:* If we aggregate these two categories (Serious Bodily Harm), the total

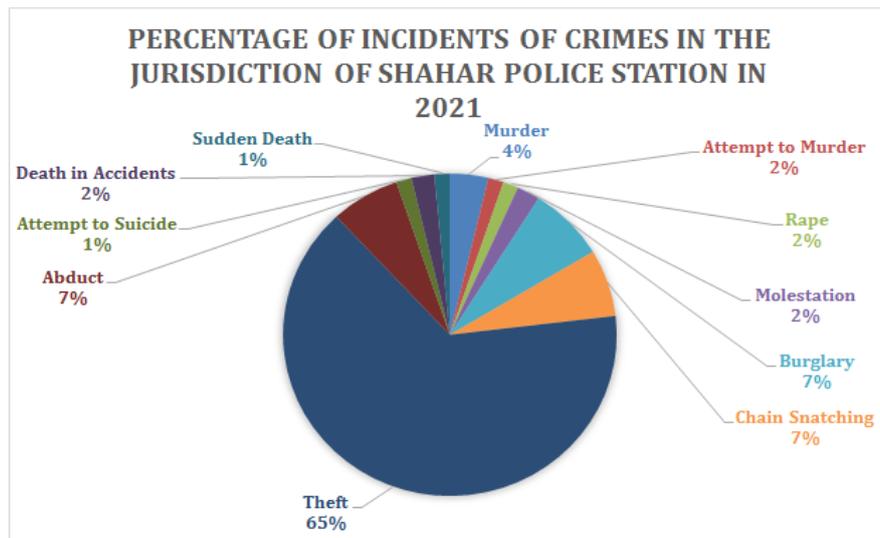
remains roughly constant (8 in 2020 vs. 7 in 2021). This suggests the underlying level of violent conflict remained stable, even if the fatal outcomes varied slightly.

- **Crimes Against Women:** Both Rape (1 to 2) and Molestation (2 to 3) showed marginal increases. While the absolute numbers are low compared to theft, the upward tick aligns with the broader city-wide trend seen in other stations (like

Ramanand) where public space interactions increased in 2021.

- **Abduction:** Kidnapping cases rose by **50%**, from **6** to **9**. This is a consistent trend across nearly all police stations in this dataset,

warranting a city-wide sociological investigation into the causes (e.g., domestic disputes, trafficking, or elopement cases registered as abduction).



3. Accidental and Other Deaths

- **Sudden Death:** Unlike the Jalgaon Taluka station, which was overwhelmed by "Sudden Death" cases (100+), Shahar Police Station recorded nearly zero (0 in 2020, 2 in 2021). This confirms that Shahar PS is likely a purely law-enforcement-focused urban station, whereas Jalgaon Taluka likely holds jurisdiction over the Civil Hospital or rural areas where accidental death reports (ADR) are processed.

Critical Synthesis

1. **The "Urban Core" Profile:** Shahar Police Station and Jilha Peth Police Station share a distinct profile: **High Theft, Rising Street Crime, and Low ADR (Sudden Death)**. This contrasts with the peripheral or rural stations. The 41% surge in total crime here is almost certainly linked to the reopening of markets, transport hubs, and public spaces in the city center during 2021.
2. **The Stability of Organized Crime vs. Opportunistic Crime:** Burglary (often requiring planning/intent) remained flat. In contrast, Theft and Chain Snatching (often opportunistic) surged. This suggests that the "crime wave" of 2021 was driven by opportunity and mobility rather than a spike in organized criminal gangs.

3. **Violence Intensity:** While property crime exploded, interpersonal violence (Murder/Attempt) did not see a corresponding surge. This indicates that the social stressors of 2021 manifested more in economic desperation (theft) than in social rage (violence).

Visual Representation:

The bar graph below visually emphasizes the dominance of the orange "Theft" bar in 2021, illustrating how this single category overshadows all other types of crime in this jurisdiction.

Conclusion

The Shahar Police Station data for 2021 reflects a "return to normalcy" for urban crime. The suppression of street crime seen during the 2020 lockdown evaporated, leading to a sharp correction in theft and snatching numbers. For policymakers, the key takeaway is the sheer volume of **Theft (87 cases)**, which suggests a need for better beat policing and surveillance in commercial districts rather than just reactive investigation.

Incidents of Crimes in the Jurisdiction of Shani Peth Police Station:

The crime statistics for the Shani Peth Police Station for the years 2020 and 2021, along with the visual representation are analyzed here.

Incidents of Crimes in the Jurisdiction of Shani Peth Police Station				
Type of Crimes	Number of Incidents of Crimes in the Jurisdiction of Shani Peth Police Station In 2020	Percentage of Incidents of Crimes in the Jurisdiction of Shani Peth Police Station In 2020	Number of Incidents of Crimes in the Jurisdiction of Shani Peth Police Station In 2021	Percentage of Incidents of Crimes in the Jurisdiction of Shani Peth Police Station In 2021
Murder	2	2.38	3	2.4
Attempt to Murder	4	4.76	2	1.6
Rape	1	1.19	3	2.4
Molestation	2	2.38	3	2.4
Burglary	15	17.86	14	11.2
Chain Snatching	3	3.57	5	4
Theft	49	58.33	78	62.4
Abduct	5	5.95	10	8
Attempt to Suicide	1	1.19	3	2.4
Death in Accidents	1	1.19	1	0.8
Sudden Death	1	1.19	3	2.4
TOTAL	84	100	125	100
Source: Police Station Data 2023				

Overview of Aggregate Trends

The crime landscape within the jurisdiction of Shani Peth Police Station exhibits a substantial growth of 48.8% in total recorded incidents, rising from 84 in 2020 to 125 in 2021. This sharp upward trajectory is consistent with the trends observed in the Jilha Peth and Shahar stations, reinforcing the observation that urban jurisdictions in Jalgaon experienced a significant "crime rebound" as pandemic restrictions eased in 2021.

Categorical Analysis

1. Offences against Property

Property crimes are the most prevalent category in this station's jurisdiction, though the sub-trends show an interesting divergence between opportunistic and organized theft.

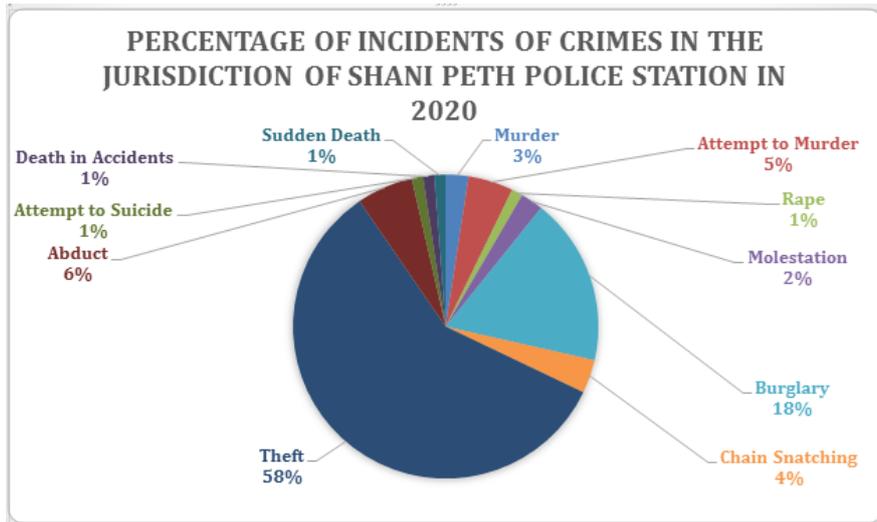
- **Theft:** This category is the primary engine of the statistical increase. Incidents surged from 49 in 2020 to 78 in 2021, a 59% increase. Theft consistently accounts for roughly 60% of the station's total workload (58.33% in 2020, 62.4% in 2021). This suggests that as public spaces repopulated, opportunistic theft scaled linearly with footfall.
- **Burglary:** Unlike other stations where burglary numbers fluctuated wildly, Shani Peth shows a high and relatively stable baseline of organized property crime (15 cases in 2020, 14 cases in 2021). Despite the slight numerical drop, burglary remains the second largest crime category, accounting for over 11% of incidents.

- **Chain Snatching:** There was a 66% increase in chain snatching (from 3 to 5), mirroring the city-wide trend of rising street crime corresponding with increased mobility.

2. Offences against the Human Body

The data regarding crimes against the person reveals specific areas of escalating concern, particularly regarding abduction and crimes against women.

- **Abduction:** This is a critical statistical finding. Abduction cases doubled from 5 (5.95%) in 2020 to 10 (8.00%) in 2021. A 100% increase in such a serious offense distinguishes Shani Peth from other stations where abduction rates were more stable.
- **Crimes against Women:** There is a uniform upward tick in sexual offences.
 - Rape cases tripled from 1 to 3.
 - Molestation cases rose slightly from 2 to 3.
 - While the absolute numbers remain low compared to theft, the upward trend is undeniable and contributes to the overall 2021 crime surge.
- **Violent Crimes (Murder & Attempt):**
 - Murder increased slightly from 2 to 3.
 - Attempt to Murder halved from 4 to 2.
 - *Interpretation:* The aggregate level of life-threatening violence remained low and stable (6 incidents in 2020 vs. 5 in 2021), indicating that the 2021 crime wave was not driven by violent conflict.



3. **Other Incidents**

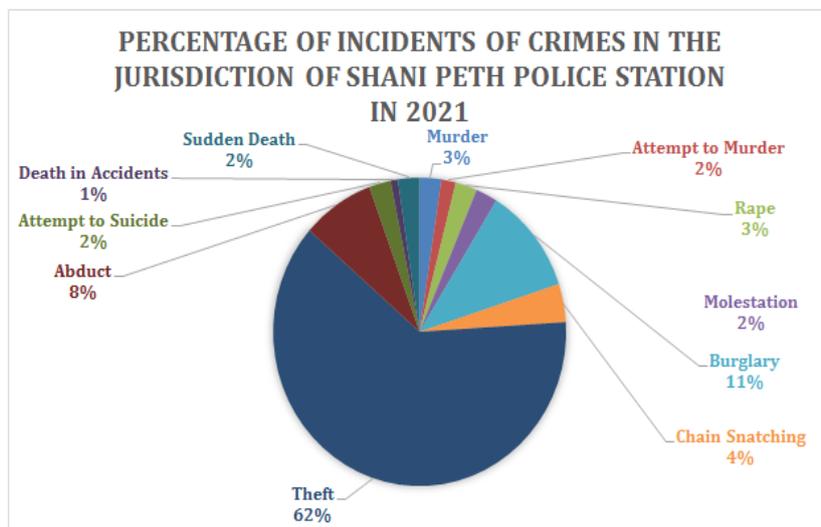
- **Attempt to Suicide:** Cases rose from 1 to 3, which may reflect growing psychological or social stressors in the post-pandemic period.
- **Sudden Death & Accidents:** These numbers remained negligible (1-3 cases), confirming that this station's resources are primarily focused on criminal investigation rather than accidental death reporting.

Critical Synthesis

1. **The "Abduction Anomaly":** The most concerning localized trend for Shani Peth is the doubling of abduction cases (5 to 10). While theft increased everywhere in the city, an abduction spike of this magnitude is specific to this

jurisdiction. It warrants a deeper qualitative review to determine if these were related to missing minors, elopement cases registered as kidnapping, or other specific social factors.

2. **Consistency in Burglary:** The fact that burglary remained high (15 cases) even during the 2020 lockdown—when other stations saw drops—suggests that Shani Peth may have residential pockets that were consistently targeted by organized offenders, irrespective of the pandemic.
3. **The Dominance of Theft:** With 78 cases, theft in 2021 dwarfed all other crimes combined. The data indicates that Shani Peth's primary policing challenge is volume property crime management.



Visual Representation:

The bar graph below visually captures this analysis. Note the massive orange bar for "Theft," which illustrates the scale of the property crime surge, alongside the noticeable rise in the "Abduction" category.

Conclusion

Shani Peth Police Station followed the broader city-wide pattern of a post-lockdown crime surge, driven primarily by a 59% spike in theft. However, it is distinct due to its high, stable rate of burglary and a worrying 100% increase in abduction cases. The 2021 data suggests a jurisdiction dealing with a mix of opportunistic street crime and persistent, organized criminal activity.

Incidents of Crimes in the Jurisdiction of MIDC Police Station:

Here is the detailed academic analysis of the crime statistics for the MIDC Police Station

(Maharashtra Industrial Development Corporation) for the years 2020 and 2021, along with the visual representation.

Incidents of Crimes in the Jurisdiction of MIDC Police Station				
Type of Crimes	Number of Incidents of Crimes in the Jurisdiction of MIDC Police Station In 2020	Percentage of Incidents of Crimes in the Jurisdiction of MIDC Police Station In 2020	Number of Incidents of Crimes in the Jurisdiction of MIDC Police Station In 2021	Percentage of Incidents of Crimes in the Jurisdiction of MIDC Police Station In 2021
Murder	2	0.83	4	1.83
Attempt to Murder	15	6.22	4	1.83
Rape	8	3.32	4	1.83
Molestation	26	10.79	14	6.42
Burglary	26	10.79	27	12.39
Chain Snatching	0	0	3	1.38
Theft	93	38.59	115	52.75
Abduct	21	8.71	14	6.42
Attempt to Suicide	3	1.24	3	1.38
Death in Accidents	47	19.50	30	13.76
Sudden Death	0	0	0	0
TOTAL	241	100	218	100

Source: Police Station Data 2023

Overview of Aggregate Trends

The data from the MIDC Police Station presents a unique deviation from the broader city trends. While most urban stations (Shahar, Jilha Peth, Shani Peth) saw a surge in crime in 2021, the MIDC jurisdiction witnessed a 9.5% decline in total incidents, falling from 241 in 2020 to 218 in 2021. This suggests that the dynamics of crime in industrial and highway-adjacent zones operate differently than in residential or commercial market areas.

Categorical Analysis

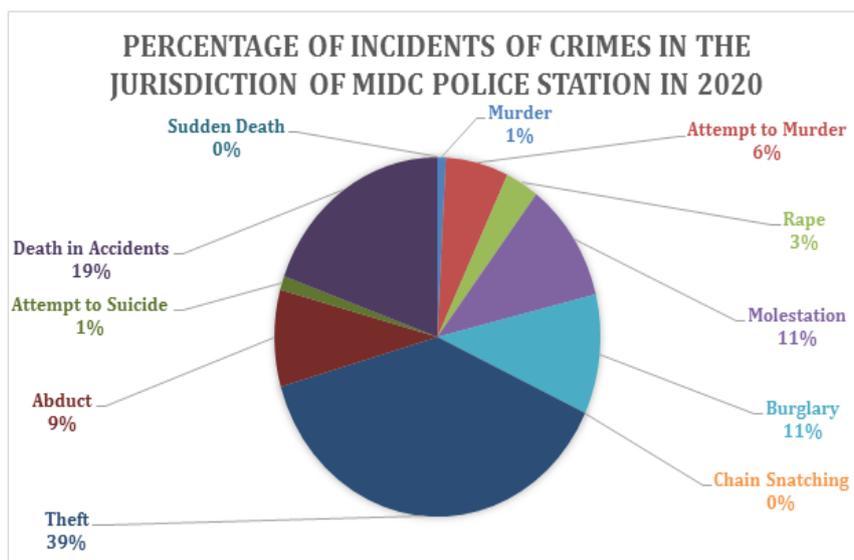
1. Offences against Property

Property crime in the MIDC area is characterized by high volume and a shift toward opportunistic theft.

- **Theft:** This is the dominant crime category, showing a clear upward trend. Incidents rose

from 93 (38.59%) in 2020 to 115 (52.75%) in 2021. This 23.6% increase aligns with the industrial nature of the area—as factories reopened and logistics chains resumed in 2021, the opportunity for theft of materials and goods likely increased.

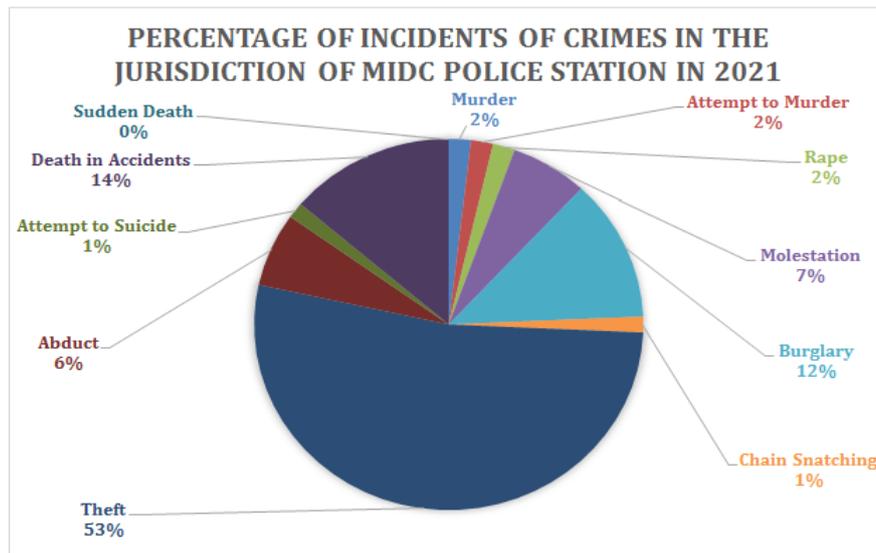
- **Burglary:** The figures for burglary are remarkably high and stable, with 26 cases in 2020 and 27 cases in 2021. This consistency suggests a persistent threat of break-ins, likely targeting warehouses or industrial units, which remained vulnerable regardless of the pandemic status.
- **Chain Snatching:** Incidents rose from 0 to 3, a minor increase consistent with the return of commuters to the roads.



2. Offences Against the Human Body

The most significant positive developments in the MIDC jurisdiction occurred in this category, with sharp declines in violence and crimes against women.

- **Violent Crimes (Attempt to Murder):** There was a massive drop in **Attempt to Murder** cases, from **15** in 2020 down to **4** in 2021. This indicates a significant de-escalation of severe interpersonal conflict.
- **Crimes Against Women:**
 - **Molestation** cases nearly halved, dropping from 26 (10.79%) to 14 (6.42%).
 - **Rape** cases also halved, falling from 8 to 4.
 - **Interpretation:** The high numbers in 2020 (during lockdown) might have been driven by domestic proximity or labor unrest in worker colonies. The reopening in 2021 appears to have alleviated these specific social pressures.
- **Abduction:** Kidnapping cases decreased from 21 to 14. However, the absolute number (14) remains high compared to other stations, which is often a characteristic of transport hubs where tracking individuals is difficult.



3. Accidental Deaths

- **Death in Accidents:** The MIDC jurisdiction typically covers highways and heavy transit routes. Consequently, accidental deaths are a major component of the caseload.
 - In 2020, there were 47 deaths (nearly 20% of all incidents).
 - In 2021, this dropped to 30 deaths.
 - *Observation:* While the decrease is positive, the sheer volume (30-47 deaths) dwarfs the accidental death figures of city stations (which typically report 1-9 deaths), confirming the "Highway/Industrial Risk" profile of this station.

Critical Synthesis

1. **The "Industrial Pivot":** The shift from 2020 to 2021 in MIDC is a shift from Interpersonal Conflict to Material Theft. In 2020, the station dealt with high violence (15 attempts to murder) and high crimes against women (26 molestation cases). In 2021, these numbers plummeted, replaced by a surge in Theft (115 cases). This reflects the transition from a "locked down society" (breeding domestic/social friction) to an "open industrial economy" (breeding property crime).
2. **The Safety Anomaly:** Unlike the city center stations where molestation and street crime rose in 2021, MIDC saw them fall. This might be because the "floating population" of workers in 2021 was more focused on employment, whereas

the stagnant population of 2020 faced economic desperation and social friction.

3. **High Casualty Rate:** The presence of 47 accidental deaths in 2020 is a grim statistic. It highlights that traffic management and industrial safety are as critical to this police station's mandate as crime prevention.

Visual Representation:

The bar graph below visually illustrates these trends. Note the tall blue bars (2020) for "Attempt to Murder," "Molestation," and "Accidents" shrinking in 2021 (orange), while the "Theft" bar grows significantly.

Conclusion

The MIDC Police Station data portrays a jurisdiction that successfully reduced violent crime and crimes against women in 2021, contributing to an overall drop in total cases. However, the policing challenge has mutated: the station now faces a growing wave of Theft (52% of all crime) and a persistent, high baseline of Burglary and Fatal Accidents.

Concussion

Based on the spatial analysis of crime in Jalgaon City between 2020 and 2021, the research demonstrates a significant shift in the criminal landscape following the relaxation of COVID-19 pandemic restrictions. While aggregate trends varied by jurisdiction—with some stations like MIDC and Jalgaon Taluka seeing overall declines—the core

urban areas of Jilha Peth, Shahar, and Shani Peth experienced a substantial "post-lockdown rebound" in total recorded incidents. This surge was overwhelmingly driven by opportunistic property crimes, specifically theft and chain snatching, which scaled linearly with the return of public mobility and commercial activity.

The study also reveals critical spatial disparities in sensitive crime categories, such as crimes against women and abductions. For instance, while molestation cases plummeted in Jilha Peth, they skyrocketed by 333% in the Ramanand jurisdiction, suggesting a complex interplay between localized reporting behavior and the effectiveness of specific policing initiatives. Furthermore, the high volume of "Sudden Deaths" and accidental fatalities in jurisdictions like Jalgaon Taluka and MIDC highlights that police resources in these areas are heavily diverted toward administrative investigations and highway safety rather than active criminal enforcement.

Ultimately, the analysis supports the hypothesis that crime is not randomly distributed but clustered based on the socio-economic and environmental features of each zone. The transition from a "locked down" society, characterized by interpersonal and domestic friction in 2020, to an "open economy" in 2021, which favored material theft, necessitates a shift in policing strategies. The paper concludes that effective law enforcement in Jalgaon City requires a move toward targeted, data-driven interventions—such as enhanced surveillance in commercial hubs and dedicated women's safety measures—to address the evolving nature of urban crime.

Acknowledgment

The author expresses sincere gratitude to the Vice-Chancellor Research Motivation Scheme (VCRMS) 2022, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon, for providing the financial assistance necessary to carry out this research work.

Financial support and sponsorship

Nil.

Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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