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# CHANGING PATTERN OF RAPE IN CHANDIGARH: A GEOGRAPHICAL ANALYSIS

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#### **Abstract**

Keywords:

Rape;

Chandigarh;

Spatial Analysis;

Temporal Analysis;

Hot-Spts Analysis.

In this paper, an attempt has made to study the spatial and temporal pattern of rape in Chandigarh. The geography is the study of areal variation and distribution. To fulfil the requirement and provide a geographical base to this study, it is necessary to explain the spatial pattern of crime against women. The ward, town and village wise map of Chandigarh used to draw the crime rate of rape. The temporal trends of crime against women are showing variation and these variation depends upon many factors like socio-culture, economic development, population growth by natural as well as through migration, female literacy etc. In this paper hot spot also used, which plays an important role in identification of crime prone areas. Hotspots also help to generate the policies for prone areas.

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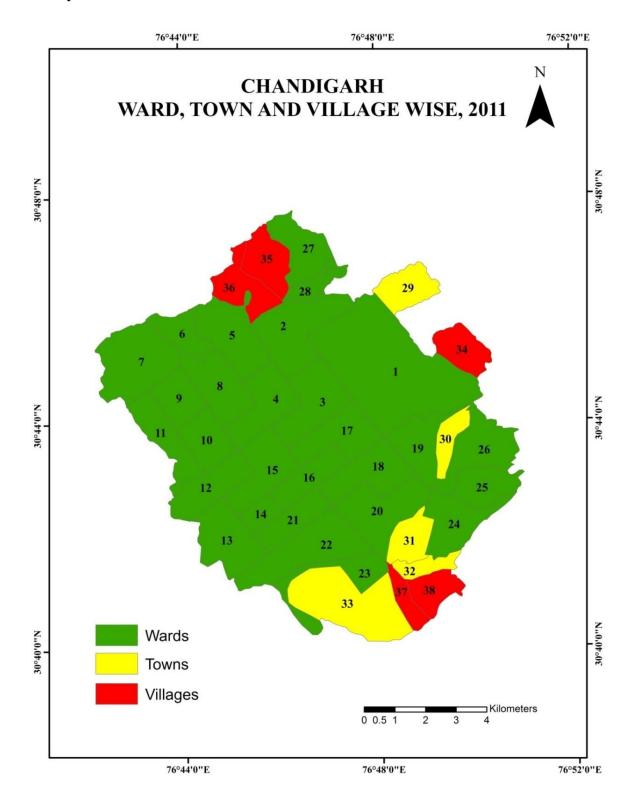
#### 1.1 Introduction

This is very shocking news that the most of the rape are ignored and unreported. Only a few women are in the position to report the case of rape. The reasons of un-reporting are many including low conviction rate, social stigma, lack of awareness about women rights, timid and weak attitude, and fear of retaliation from offender, what society will say etc. rape actually depends on the socio-cultural conditions of a particular society. At global level, The World's Women (2015) cleared the condition of women in world through these facts:

- 1. One out of three women has experienced sexual violence and harassment at their home and work places.
- 2. Two out of three women experience family violence by their family members.
- 3. Less than ten percent of the effected women get help from the police.

However, the government of India has been taking some strong actions to control the rape. This phenomenon has changed after the incident of rape, namely Nirbhaya *Rape* (Dec. 2012) in Delhi, which increase the importance to control the rape incidences. After this case, the reporting of rape increased with higher rate. Recently government introduced women police stations in each district, due to which reporting of crime incidents and awareness has increased in women regarding rape. Jha (2015) in his article "Geography of Rape Crime in India: A Spatial Analysis of Official Data" analyzed the spatial pattern of rape and crime against women, determining the various level of vulnerability exists in India and to correlate rape crime rate to some of the indicators of status of women. Major finding of the study shows that no clear relationship has detected between rates of rape crime and the social indicators (Literacy, sex ratio and female work participation rate). It observed that there is a need of micro level analysis to understand the relationship of rape crime with socio-economic indicators as well as determine the clear spatial pattern.

### 1.2 Study Area



Source: Administrative Atlas of Chandigrh, 2011.

The study area lies between 30.40° North to 30.48° North in Latitude and 76.42° East to 76.51° East in Longitude. The study area Chandigarh is a union territory of India that serves as the joint capital of the states of Haryana and Punjab. It is located near the foothills of the Shivalik range of the Himalayas in northwest India. It covers an area of approximately 114 km², out of the total area i.e. 114 km², 109.53 km² is urban area and only area of 4.47 km² comprises of rural area. The study area lies between 30° 40′ to 30° 48′ North Latitude and 76° 42′ to 76° 51′ East Longitude. It has an average elevation of 321 metres (1053 ft). It situated in the northern plains, and vast fertile flat land. Bhabar is located in the northeast and rest of the area is a terai belt. Its surrounding districts are Mohali, Patiala and Roopnagar in Punjab, Panchkula and Ambala in Haryana. It approximately lies in the centre of the north zone of states of Jammu and Kashmir, Punjab, Haryana, eastern Rajasthan, Himachal Pradesh, Uttarakhand, western Uttar Pradesh and New Delhi in India.

#### 1.3 Objectives

The objectives of the study are:

- 1) To examine the spatial patterns of rape in Chandigarh.
- 2) To analyse the temporal trends of rape in Chandigarh
- 3) To identify the Hot-Spot and Prone Areas of rape in Chandigarh.

#### 2. Research Method

#### 2.1 Source of Data

This study based on secondary data collected from various sources. The data of the socio-economic factors has been obtained from, census report of 2001 and 2011. The required data regarding location and types of rape for 2005, 2010 and 2015 has collected from the Chandigarh Police Station and Police Headquarter.

#### 2.2 Methodology

Crime Rat 
$$e = CR_i = \frac{CX_i}{TFP_i} \times 100000$$

Where:  $CR_i = Rate of Crime 'X' in Wards I.$ 

CXi = Crime 'X' in Wards I.

TFPi = Total Female Population in Wards I.

An attempts has made to get spatial patterns of crime, the processed information represents through statistical diagrams and has been drawn map using suitable cartographic techniques. The Arc GIS Version 9.3 used generating maps of Chandigarh during the years 2005, 2010 and 2015. Appropriate tables, graphs and charts used to present the trends of rape.

#### 3. Results and Analysis

#### The section 376 of the Indian Penal Code gives the legal definition of rape:

Rape explained by the following six descriptions:

First: Against her will.

Secondly, without her consent.

Thirdly: With her consent, when her consent has obtained by putting her or any person in whom she is interested in fear of death or hurt.

Fourthly: With her consent, when the man knows as that he is not her husband and that her consent is given because she believes that he is another man to whom she is or believes herself to be lawfully married.

Fifthly: With her consent, when at the time of giving such consent because of unsoundness of mind or intoxication or the administration by him personally or through another of any stupefying or unwholesome substance, she is unable to understand the nature and consequences of that to which she gives consent.

Sixthly: With or without her consent when she is less than sixteen years of age.

#### Rape in India

Data of N.C.R.B Report 2015, shows that in year 2015 maximum numbers of rape cases were registered in the state of Madhya Pradesh (4400 cases) followed by Maharashtra (4189), Rajasthan (3649), Uttar Pradesh (3029) and Orissa (2251). These five states constitute 50.38 percent of the total rape cases reported in the country as a whole. Whereas in terms of rate, the national rape rate is 5.7. Among the states, Chhattisgarh (12.2) ranked first followed by Tripura and Arunachal Pradesh (11.5), Madhya Pradesh (11.9), Mizoram (11.3) and Assam (11.0). In

case of union territories, the rape rate was 23.7 in Delhi followed by Andaman and Nicobar Island (13.5) and Chandigarh (10.1).

#### Spatial Pattern of Rape in Chandigarh in 2005

A total 22 wards and 22 villages are analysed here. Incidence of rape at the wards, town and villages level shows that in the year 2005, maximum numbers of such cases were reported in the ward no. 8 (6 cases) followed by Ward No. 15(4 cases), Ward No. 19 (4 cases), Ward No. 1 (3 cases), Ward No. 8 (2 cases) and village Dhanas (2 cases). These five Wards and one village constitute 64 percent of the total rape cases reported in Chandigarh as a whole. Whereas in terms of rape rate during 2005 the village Dhanas ranked first with (155.4) followed by Palsora (49.2), Ward No. 18 (45.3) and Ward No. 15 (27.9). In 2005, the average crime rate of rape in Chandigarh was 8.4.

The geographical pattern of rape in the year 2005 shows that the South Western, South Eastern and Northern Wards including (Dhanas, Palsora, Ward No. 18 and 15) shows higher crime rate, the Central part shows moderate rate and the rest wards shows lower crime rate of rape.

#### Spatial Pattern of Rape in Chandigarh in 2010

A total 22 wards and 22 villages are analysed here. Incidence of rape at the wards and villages level shows that in the year 2010, maximum numbers of such cases were reported in the ward no. 18 (4 cases) followed by Ward No. 7 (3 cases), Ward No. 19 (3 cases), Ward No. 3 (2 cases), Ward No. 15 (2 cases) and village Mani Majra (2 cases). These five Wards and one village constitute 61 percent of the total rape cases reported in Chandigarh as a whole.

Whereas in terms of rate, the rate of rape during 2010 the village Burail ranked first with (335.6) followed by Mani Majra (93.3), Dhanas (77.7), Dadu Majra (69.3) and Khuda Alisher (55.4). In Chandigarh, the average rape rate was 7.9 in 2010.

The geographical pattern of rape in the year 2010 shows that the South-West, South- East and Northern region including (Burail, Mani Majra, Dhanas, Dadu Majra and Khuda Alisher) shows

higher crime rate, the Central part shows moderate rate and the remaining wards shows lower rape rate.

#### Spatial Pattern of Rape in Chandigarh in 2015

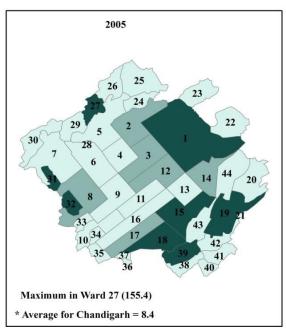
A total 28 wards, 5 towns and 5 villages are analysed here. Incidence of rape at the wards and villages level shows that in the year 2015, maximum numbers of such cases were reported in the ward no. 8 (6 cases) followed by Ward No. 12 (9) followed by Ward No. 23 (7), Ward No. 1, 25,32 has (6) and village Dhanas (5). These five Wards and one village constitute 68.4 percent of the total rape cases reported in Chandigarh as a whole. Whereas, during the 2015 village Dhanas ranked first with i.e. 176.3 followed by Muli Jagran (134.1), Khuda Alisher (97.1) and Khuda Jassu (87.6). The average crime rate of rape in Chandigarh in 2015 was 16.4. The geographical pattern of rape in the year 2015 shows that the North Western, South Eastern and Northern Wards including (Dhanas, Muli Jagran, Khuda Alisher, Khuda Jassu) shows higher crime rate, the Central part shows moderate rate and the rest wards shows lower crime rate of rape.

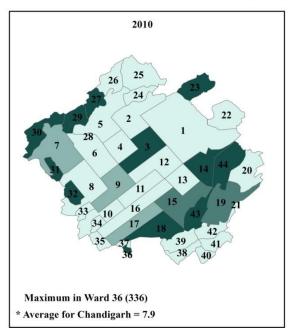
#### Changing Pattern and Causes of Rapes rate in Chandigarh from 2005-2015

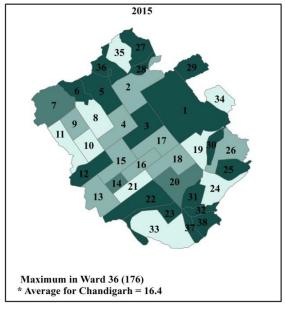
The spatial patterns of rape rate have changed from 2005 to 2015. In 2005, the rate of rape in western parts of Chandigarh is lower but the scenario have been changed in 2010 and 2015 it shifted from eastern part to western side and spread in whole Chandigarh. The rate of rape was higher in following areas i.e. Dhanas, Khuda Jassu, Mani Majra, Muli Jagran, Palsora and Khuda Ali Sher. The major factor responsible for higher rate of rape are small size of household, lower sex ratio, lower percentage of working women population, low level of female literacy, low percentage of house ownership, low level of basic amenities availability in households, sex selected immigration and materialistic approach towards women are responsible for the higher rate of rape in these areas.



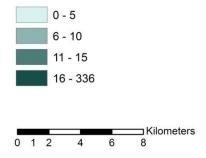








# Crime Rate Reported crime per lakh of Female Population



Source: Police Headquartar, Chandigarh

## **Temporal Trends of Rape in India**

During the period of 25 years, the cases show variations across the time. The maximum numbers of rape incident are found in year 2014 (36,735 cases) followed by year 2015 (34,651), 2013 (33,707) and 2012 (24,923) however lowest in year 1991 (9,793), 1992 (11,112) and 1993 (11,242). From 1991 it was increasing continuously. However, after the year 2013 it increased tremendously.

Whereas, in case of rape rate, shows that highest rape rate i.e. 6.3 in 2014 followed by 2015 (5.9), 2013 (5.7), and 2012 (4.2). However, in 1991, the data shows the lowest rape rate 2.4 followed by 1992 (2.7), 1993 (2.8) and 1994 (3.0).

#### **Temporal Trends of Rape in Haryana**

The reported cases of rape in Haryana show variations across the time. The maximum numbers of rape incident are found in year 2014 (1,174 cases) followed by year 2015 (1,070), 2013 (971) and 2011 (733), however, lowest in year 1991 (134), 1993 (198) and 1992 (215).

Whereas, in case of rape rate the year 2014 shows the highest rape rate i.e. 9.9 followed by 2015 (9.0), 2013 (8.2), and 2010 (7.4). However, the year 1991 shows the lowest rape rate 1.8 followed by 1993 (2.5), 1994 (2.6) and 1992 (2.8).

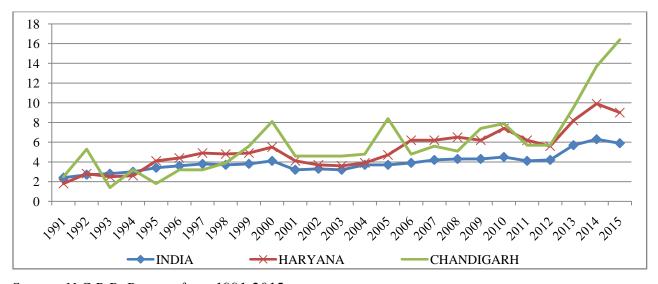
#### **Temporal Trends of Rape in Chandigarh**

The trends of rape in Chandigarh are not showing uniform pattern, there are up and down in crime rate, but it is continuously increasing trend shown in the diagram. Incidences of rape in Chandigarh show variation across the time period. The maximum numbers of rape incident are found in year 2015 (78 cases) followed by year 2014 (65), 2013 (45) and 2005 (33) however, it is lowest in year 1993 (4), 1995 (5), 1991 (7), 1994, 1996 and 1997 (9 cases).

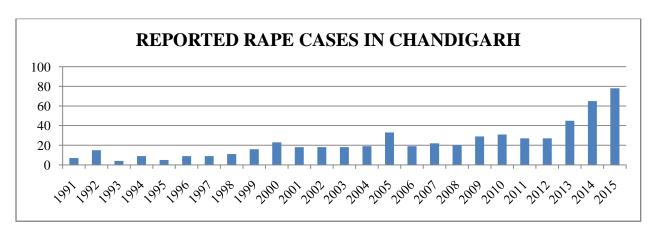
Whereas, in case of rape rate the year 2015 shows the highest rape rate i.e. 16.4 followed by 2014 (13.7), 2013 (9.5), and 2005 (8.4), however the lowest rape rate i.e. 1.4 in 1993 followed by 1995 (1.8), 1991 (2.5), 1994, 1996 and 1997 (3.2).

In 1991-2015 the total 577 rape cases were reported in Chandigarh. Reported rape cases are not uniform trends, but it rapidly increased after 2013. It shows the drastic change due to the increased awareness among the women and the strict law, establishment of women police station, use of various media, information and technology.

#### TEMPORAL TRENDS OF RAPE RATE



Source: N.C.R.B. Reports from 1991-2015.



Source: N.C.R.B. Reports from 1991-2015

	INDIA		HARYANA		CHANDIGARH	
YEARS	INCIDENT	RATE	INCIDENT	RATE	INCIDENT	RATE
1991	9793	2.4	134	1.8	7	2.5
1992	11112	2.7	215	2.8	15	5.3
1993	11242	2.8	189	2.5	4	1.4
1994	12351	3	198	2.6	9	3.2
1995	13754	3.4	311	4.1	5	1.8
1996	14846	3.6	336	4.4	9	3.2
1997	15330	3.8	373	4.9	9	3.2
1998	15151	3.7	364	4.8	11	3.9
1999	15468	3.8	372	4.9	16	5.6
2000	16496	4.1	421	5.5	23	8.1
2001	16075	3.2	398	4.1	18	4.6
2002	16373	3.3	361	3.7	18	4.6
2003	15847	3.2	353	3.6	18	4.6
2004	18233	3.7	386	3.9	19	4.8
2005	18359	3.7	461	4.7	33	8.4
2006	19348	3.9	608	6.2	19	4.8
2007	20737	4.2	488	6.2	22	5.6
2008	21467	4.3	631	6.5	20	5.1
2009	21397	4.3	603	6.2	29	7.4
2010	22172	4.5	720	7.4	31	7.9
2011	24206	4.1	733	6.2	27	5.7
2012	24923	4.2	668	5.6	27	5.7
2013	33707	5.7	971	8.2	45	9.5
2014	36735	6.3	1174	9.9	65	13.7
2015	34651	5.9	1070	9	78	16.4

Source: N.C.R.B. Reports from 1991-2015.

#### Conclusion

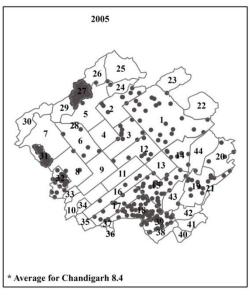
#### **Hot Spot of Rape**

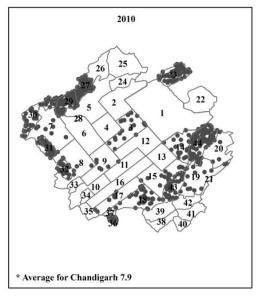
The pattern of hot spot of rape shows variation across the time and space. The main hot spot found in the fringe villages of the Chandigarh in 2005. While, it was hardly any change in location of rape hot spots between 2005 and 2010, the scenario changed after 2010. By the year 2015, rape hot spots spread out the rural fringe areas and moving toward central parts of Chandigarh.

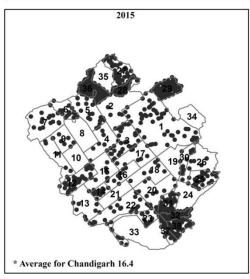
What explains all this & why the in terrify of crimes increased after 2010 and why it referred to new areas including the central part of the city. High cluster rape hot spot areas are resided by male immigrants, who came to the city for job, leaving their families behind in their native village, the purpose behind such an strategy is to control expenditure on rented accommodates and on the family members. In fact, all such migrant labors want to save as much as money as they can do send it back to their native homes to full urgent family needs. They live in congested, high density unplanned areas either in city periphery or in villages of Chandigarh. In certain conditions, sometimes created by circumstances or by sex desire, force the young laborer migrants to have sex with a woman against her consent. Different factors are involves in different locations. Factors explaining rape incidences in periphery villages are quite different from those in central parts of City. Above all this, the way reporting of rape crimes against women increased due to the strict instructions from the ministry of home affairs, government of India after "Nirbhya" rape incidence happened on December 2012 in Delhi has played a significant role to increase in reporting of rape incidences. However, from the correlation matrix the following things like low sex ratio, low female literacy, lack of amenities availability, small size of households and lower percentage of house ownerships in these areas are also major cause behind this scenario.

# CHANDIGARH Hot-Spot of Rape Rate, 2005-2015









Crime Rate Number of Crime incident per lakh of Female Population

1 Dot = 1 Rate

00.51 2 3 4

Source: Police Headquartar, Chandigarh

Table: Chandigarh: Changing Geography of Rape Hot Spots during 2005-2015						
Year	Hot Spot Area Name					
2005	Dhanas, Kajheri, Palsora, Ward no. 22					
2010	Dhanas, Kajheri, Palsora, Maloya, Dadu Majra, Daria, Kaimbwala,					
	Ward No.25 Total=8					
2015	Mani Majra, Khuda Ali Sher, Khuda Jassu, Sarangpur, Dhanas, Mauli					
	Jagran, Behlana, Raipur Khurd, Makhan Majra, Kajheri, Ward no. 1, 3, 12, 14,					
	16,17, 20,22,23 and 25					

Source: Based on data/information collected through fieldwork conducted during November and December, 2016.

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