

GEOGRAPHY OF RAPE CRIME IN INDIA: A SPATIAL ANALYSIS OF OFFICIAL DATA

Darshan Kumar Jha¹

Abstract

From womb to tomb, a woman is under the constant fear of violence. Rape is the most heinous and frequent forms of violence against women. In India, with a relatively more severe taboo on sex and sex offences committed on women, one could well visualise the most drastic consequences of such crime on the victims. The Geography of rape crime in India is very peculiar. Though rape crime is widespread in all societies whether developed or underdeveloped, India has a very low rate of rape as compared to developed countries, but it is also a fact that there is a high variation in volume of rape from one state to another in India.

The discussion begins with an overview on status of women in Indian society, rape and related issues. The objective of this paper is to examine spatial pattern of Rape crime. The National Crime Record Bureau (NCRB) publication 'Crime in India' provides data related to women specific crime under caption 'Crime against Women'. These are the data analysed in this paper. For determining the spatial pattern and different level of vulnerability Standard Deviation (SD) technique has been used. Average Rate of rape crime is considered as standard variable and SD is calculated by using formula. The level of vulnerability under deviation is grouped and finally comparative analysis is done to show spatial variation. The paper also analyzes the relation between rate of rape and socio-economic indicators of society.

Key Words: Rape, Geography of Crime, Crime against Women, Crime in India, SD technique

¹ Research Fellow, Dept. of Geography, Banaras Hindu University, Varanasi-221005,

Introduction

From womb to tomb, a woman is under the constant fear of violence. Women everywhere in the world have been subjected to various forms of violence. Rape is the most heinous and frequent forms of violence against women. According to a report prepared by Ms. Asha Ramachandran, published in the Times of India, New Delhi, *“Rape remains an unredeemed trauma. Rape is perhaps one crime where the victim is the accused and the mental trauma. She undergoes much more harrowing than the act itself. She is physically abused to begin with. Whether it is her family, friends, society, and if she decides to seek justice, the police, doctors, and the court of law, all appear to condemn her rather than the rapist”*. Crimes against women are on the rise, along with crime in general even most crimes against women go unreported for understandable reasons such as attached social stigma, distrust in legal mechanisms, fear of retaliation and so on. Women are the sufferer in the hands of men all over the world. Perhaps women were free and equal in quite very old times. Gradually the women were treated as inferior and more over they treated themselves inferior. The lack of physical power leads to general timidity in women (Srivastava, 2005). Problem of crime and offence against women have caused consideration anguish and concern in the society. In India, with a relatively more severe taboo on sex and sex offence (e.g. rape) committed on women one could well visualize the most drastic consequences of such crime on the victim and to the offender who had been convicted for sex crime (Veeraraghavan, 1987). At present, women have become sex objects and are widely treated as inferior to men in different spheres of life.

The research work is mainly focused on the sociological dimension of crime against women. Though geographers are interested in crime mapping, but there is a lack of work on geography of rape crime as well as crime against women. Studies show that increasing participation of women in work and politics is making them more vulnerable to crime. Moreover, attempts to control and intimidate women associated with decision-making processes are also leading to violence (Rajan 1981; Misra and Arora 1982; Deshpande 1984; Ganguli 1990 and Singh 1990). Assaults on women are often visibly associated with their social status, their communal, ethnic and caste identities. Implicit in all this is the treatment of women as private property, to be protected by men of particular family, social, communal and caste groups (Kannabiran 1996; D asgupta 1989). Veeraraghwan (1987) studied various dimension of rape and

victims of rape using case study approach. Verma(1990) and Nagla(1993) argues that Crimes against women have roots in the male dominated socio-economic, legal and political order. Mukherjee, Rustagi and Krishnaji (2001) analysed official statistics of crime against women as well as studied spatial pattern. Krishnaswamy, Bail and Kothari (2013) studied Urban-Rural Incidence of Rape in India and argue that the claim of a higher rate of rape incidence in urban areas is not sustainable. According to Crime in India Report 1999 out of every 100 rape cases in India, only 10 are reported and out of every 100 reported cases only 5 offenders are convicted (Vasudev, 2002). According to another report, in 1999, every day in India, 42 women were raped, 18 cases of dowry deaths occurred every hour, 5 women faced cruelty at home and 4 molestation cases were reported (Wiswanath, 2002). According to yet another study, crimes against women increased from 123 to 127 cases per million persons, during the period 1998 to 1999, while total cognizable crime rate declined from 1837 to 1823 over the same period. (Philipose 2002). Mangoli & Tarase (2009) have also reviewed the statistics related to crime against women. Though these studies tend to be restricted in terms of spatial coverage except in a limited way, Crime against women especially rape crime is of undoubted importance in the context of assessing women's status. Police records in India show that reported crimes have been rising. However, these data have so far not attracted the attention of scholars for research especially scholars of spatial sciences, perhaps because of their seeming unreliability. The present paper attempts to determine and examine trend and spatial pattern of crime against women especially spatial pattern of rape crime in India. However, the commonly used indices such as the gender development index (GDI) and gender-related empowerment index (GEM) ignore this aspect of the well-being (or the lack of it) of women. The paper also attempts to analyze the relation between rate of rape and indicators of status of women.

Status of Women in Indian Society and Rape Crime

Women are worshipped as a 'Devi' or Goddess in Indian culture. But in reality Indian woman found herself totally suppressed and subjugated in patriarchal society. It is no secret that women are especially disadvantages in all strata of Indian society. There is huge discrimination between men and women in the sphere of education and the reason attributed to such gender bias is the feeling of people that girls should be confined to the house (Mangoli & Tarase, 2009). Indian women are held down at home and in the workplace with equal fervor. She is possession of

father before marriage and possession of the husband after marriage and a possession of the son after the husband's death. India is a society where the male is greatly revered. Therefore women, especially the young girls, get very little respect and standing in this country. The Indian constitution grants women equal rights to men, but strong patriarchal traditions persist in many different societal parts, with women's lives shaped by customs that are centuries old. In India women are much exposed to cruelty of men which are infanticide, child marriage, bigamy, sati, abduction, human trafficking and various other physical and mental cruelties.

Of the all other crime and violence against women rape is the most brutal one because it is both physical and mental violence towards a woman it shatters her life. In modernizing India the incidence of rape is increasing and it is most prevalent in the big cities which are abode of cultured and educated people. In Indian society, chastity of women is of paramount importance and virginity is a prerequisite in a girl to become a bride and after marriage, a girl becomes the exclusive sexual property of her husband (Veeraraghavan, 1987). As such if by chance a girl is raped, every attempt is made to keep the knowledge within the closest family member. Perhaps this is the reason why many cases go unreported and even if the rape case are reported to the police they are at times, withdrawn or efforts are made not to take the case of court. In India, with a relatively more severe taboo on sex, one could well visualize the most drastic consequences of rape crimes.

Definition of Rape

The term "Rape" is derived from Latin word "Rapere" meaning to steal seize or carry away. It implies hiding and attacking women by men for their sexual desires. Rape is defined under section 375 of Indian Penal Code, as "unlawful and carnal knowledge by a man of a women (i) against her will, (ii) without her consent, (iii) consent obtained by putting her in fear of death or of hurt, (iv) obtaining her consent by making her believe that she is his lawfully married wife, and (v) with or without her consent when she is under 16 years of age". Rape can cover a very narrow or wide range of acts depending on whether some are excluded and defined as sexual assault, and whether penetration by penis only or other body parts/objects are included. If defined as penetration by penis, rape is a violation that can only be perpetrated by men. In this study, all cases registered as rape in police station and compiled by NCRB were considered as rape crime.

Objectives

The study aims to a statistical and spatial analysis of the state level data on rape compiled by NCRB. The objectives are;

1. To examine spatial pattern of crime against women as well as rape crime in India and determine the various level of vulnerability exists in India.
2. To correlate rape crime rate to some of the indicators of status of women.

Data and Methodology

In India, data of different types of crime put together from police records by the National Crime Record Bureau (NCRB). The NCRB has been provided data on different types of crime on an annual basis since 1953, however data on rape has been provided since 1971. The NCRB publication 'Crime in India' provides data related to women specific crime under caption 'Crime against Women'. These are the data analysed here. Analysis attempted at the national level often employs state level data. In a relatively more depth study one may go to district level. However in the case of this paper analysis is only based on data of state level because one notable limitation of NCRB data is that these statistics given at state level, do not go down to the district level.

In this paper, average crime rates (of last five years from 2008-2012) is calculated as incidence of crimes per lakh persons have been used as standard variables, because the total number of crimes has limited meaning due to varied size and population density of different states and union territories (UTs). It is true that Crime against women are under reported particularly rape cases. Thus, it is risky to rank states by crime rates, but it may still be useful for broad grouping of states. The analysis made here follows statistical methods and cartographic techniques. For determining the spatial pattern and different level of vulnerability Standard Deviation (SD) technique has been used. Rate of rape crime is considered as standard variable and SD is calculated by using formula.

The level of vulnerability under deviation is grouped and finally comparative analysis is done to show spatial variation of crime against women and rape crime. The discussion begins with an

overview on status of women in Indian society, crime against women, rape cases and related issues. After spatial analysis, we tried to make an analysis of social correlates of rape. For this purpose we choose five indicators. These are sex ratio, literacy ratio, female work participation rate and civil police per lakh of population. The data about population, literacy, sex ratio and female work participation rate are collected from census of India while data related to civil police per lakh of population collected from government publication.

Trend Analysis:

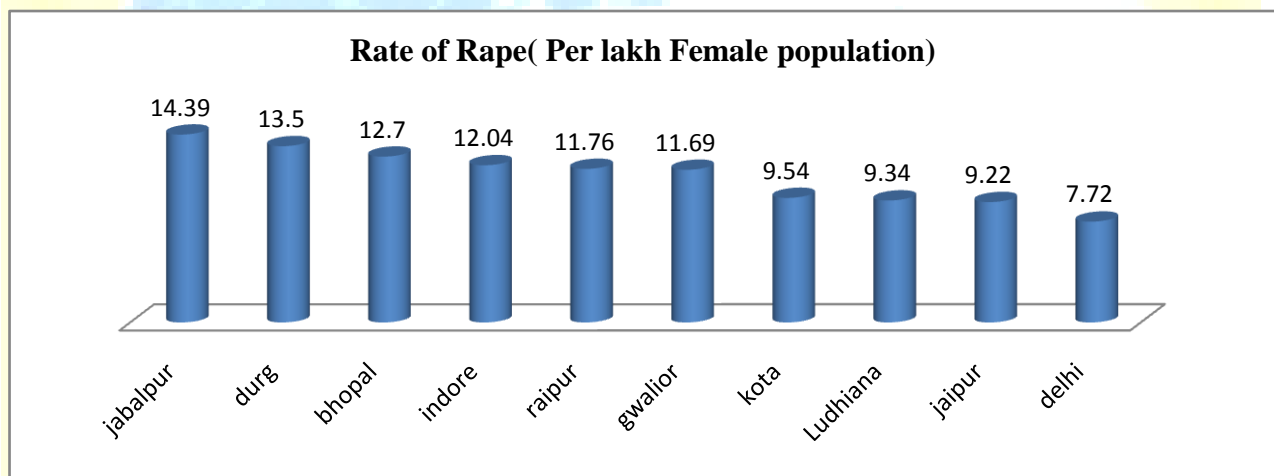
According to NCRB, a total of 2,44,270 incidents of crime against women (both under IPC and SLL) were reported in the country during the year 2012. These crimes have continuously increased during 2008 - 2012 with 1,95,856 cases in the year 2008, 2,03,804 cases in 2009 and 2,13,585 cases in 2010 and 2,28,650 cases in 2011 and 2,44,270 cases in the year 2012. The crime against women during the year 2012 has increased by 6.8% over the year 2011 and by 24.7% over the year 2008. The IPC component of crimes against women has accounted for 95.2% of total crimes and the rest 4.8% were SLL crimes against women. The proportion of IPC crimes committed against women towards total IPC crimes has increased during last 5 years from 8.9% in the year 2008 to 10.2% during the year 2012. The rate of crime against women increases from 17% in 2008 to 20.13% in 2012.

The rape cases have reported a decline of 0.3% in the year 2009 over 2008, an increase of 3.6% in 2010 over 2009 and an increase of 9.2% in the year 2011 over the year 2010 and further increase of 3.0% in the year 2012 over 2011 (NCRB, 2012). There were 24,915 victims of rape in the country during the year 2012. 12.5% of the total victims of rape were girls under 14 years of age, while 23.9% were teenage girls (14-18 years) and 50.2% were women in the age-group 18-30 years. Offenders were known to the victims in as many as in 98.2% cases. The rate of rape crime against women increases from 0.5% in 2008 to 2.1% in 2012.

Crime against women in cities

The incident of December 2012 gang-rape in Delhi has sparked a national debate in India. One strand of this debate is the assertion that acts of rape and sexual violence occur with greater

frequency and intensity in urban rather than rural India. (Krishnaswamy, Bail and Kothari, 2013) Though, claim of a higher rate of rape incidence in urban areas is not sustainable, but it is also bitter fact that the rate of crime in cities at 47.8 was comparatively higher as compared to the national rate of 41.7. According to census 2011, 53 cities having population over 10 lakh have been classified as million/mega cities. A total of 36,622 cases of crimes against women were reported from these 53 cities during the year 2012 as compared to 33,789 cases in the year 2011. Among 53 cities, Delhi (5,194 cases) has accounted for 14.2% of total such crimes followed by Bengaluru (6.2%), Kolkata (5.7%), Hyderabad (5.2%) and Vijayawada (5.2%) . The crime rate was significantly higher in Vijayawada, Kota, Kollam, Jaipur and Indore at 256.4, 130.2, 106.3, 98.1 and 88.8 respectively as compared to average (47.8) of mega cities. Delhi city has accounted for 19.3% of rape cases alone (NCRB, 2012). The following bar diagram shows the top ten cities on the basis of rape crime rate per lakh population.



Spatial Pattern of Rape crime in India

To determine the spatial pattern, a quantitative analysis of data has been done. For this purpose, average rate of rape crime of last five years from 2008 to 2012 is calculated as incidence of rape crimes per lakh persons have been used as standard variable, because the total number of crimes has limited meaning due to varied size and population density of different states and union territories (UTs). There after mean value of standard variable is derived. The mean value of 35 states and UTs come to 2.19. Deviation from the mean value for each states and UTs has been taken. Total of square values of deviation is calculated in next step. Thereafter SD is calculated

and it comes to 1.51. The levels of vulnerability based on average rape rate under deviation are grouped (Table-2).

The five level of vulnerability have emerged and it shows a peculiar spatial pattern of rape crime in India. Mizoram and Tripura showed the very high level of vulnerability ranges from 5.2 crime rate per lakh population and above, while Assam, Meghalaya and M.P. comes under the high category having statistical range from 3.7 to 5.2 crime rate per lakh population.

Table 2: Vulnerability Level on the basis of rate of Rape crime

Level of vulnerability	Statistical Value	Statistical Value (Rate of Rape)	Name of states
Very High	Above than $\bar{X}+2\sigma$	Above than 5.2	Mizoram, Tripura,
High	$\bar{X}+\sigma$ to $\bar{X}+2\sigma$	3.7 to 5.2	Assam, Madhya Pradesh, Meghalaya,
Medium	\bar{X} to $\bar{X}+\sigma$	2.19 to 3.7	Arunachal Pradesh, Chhattisgarh, Goa, Haryana, Himanchal Pradesh, Odisha, Sikkim, Andaman and Nicobar, Delhi,
Low	\bar{X} to $\bar{X}-\sigma$	0.68 to 2.19	Andhra Pradesh, Bihar, Jammu and Kashmir, Jharkhand, Karnataka, Kerala, Maharashtra, Manipur, Nagaland, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttrakhand, West Bengal, Chandigarh, Dadra Nagar Haveli,
Very Low	Lower than $\bar{X}-\sigma$	Lower than 0.68	Gujarat, Daman and Diu, Lakshadweep, Puducherry

The states which showed medium category include Arunachal Pradesh, Chhattisgarh, Goa, Haryana, Himanchal Pradesh, Odisha, Sikkim, Andaman and Nicobar Delhi. These statistical range of this category is varies from 2.19to 3.7 crime rate per lakh population. Andhra Pradesh, Bihar, Jammu and Kashmir, Jharkhand, Karnataka, Kerala, Maharashtra, Manipur, Nagaland, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttrakhand West Bengal Chandigarh and Dadra Nagar Havelli showed the low level category which has statistical ranges from 0.68 to 2.19 crime rate per lakh population. The category of very low level (statistical range lower than to 0.68) includes Gujarat Daman and Diu, Lakshadweep and Puduchery.

The distribution of states and UTs by the crime rate varied from 0.28 (Lakshadweep) to 7.27 (Mizoram) crime per lakh population. Almost 11% of state fall within the very low category ranges from Lower than 0.68 crime per lakh population, while the 48 % state falls in Low range, 26% in medium and 8% states & UTs falls in high vulnerability level category, while there is only 6% states fall in very high category.

Fig 1 presents the map of India with the very high and high rape crime rate states shaded by dark colours. It presents a very clear spatial pattern of rape crime. Apart from Mizoram and Tripura, the crime belt can be seen in two regions across the map of India. First region includes Assam and Meghalaya while second is Madhya Pradesh. Most of the big states fall under low vulnerable category. The data relating to these states may be unreliable or due to big size of these states they fall in low category. The district level analysis will be helpful to understand more clear spatial pattern of rape crime.

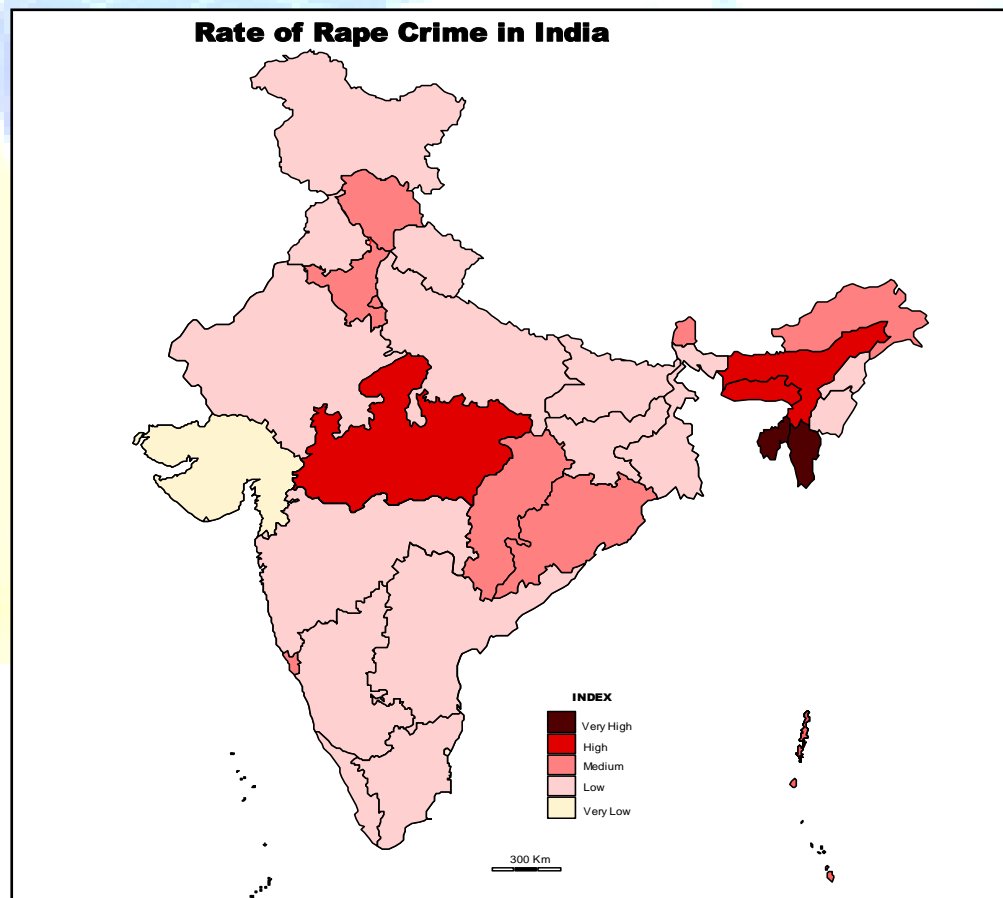


Fig 1: Vulnerability Map of India based on rate of rape crime

Social Correlates of Rate of Rape Crime:

In this section, a preliminary statistical analysis of possible social correlates of rape crime has been made. For this purpose 4 indicators, which are often considered in the measurement of status of women, has been chosen. These are sex ratio (females per thousand males), female work participation rate (per cent), literacy rate (percent) and Police per lakh Population. The indicators were constructed on the basis of the 2001 Census data, civil police per lakh population data, 2011 released by Ministry of Home Affairs.

Contrary to expectations, no clear relationship could be detected between rates of rape crime and the three variables (Literacy, sex ratio and female work participation rate). Figure 3 shows the scatter plot of rate of rape crime against literacy rates while fig 4 shows scatter plot of rate of rape crime against sex ratio and fig 5 shows scatter plot of rate of rape crime against female work participation rate. The pattern of the lack of a relationship was typically observed for these cases.

There is the possibility that it could be the result of different relationships in different regions or states. Table 3 presents the Pearson correlation coefficient of average rape rate against other variables. The values of Pearson correlation coefficient clearly indicate the lack of correlation. Only Pearson correlation coefficient for correlation between average rape rate and civil police per lakh population is significant at 0.05 level.

Table 3: Pearson Correlation coefficient of Average Rape rate with other Variables

	Sex Ratio	Literacy Rate	Female Work Participation Rate	Police Per Lakh Pop.
Average Rape rate	0.165	0.115	0.306	0.410*

*. Correlation is significant at the 0.05 level (2-tailed).

There is a clear indication of a weak but positive relationship of the rate of rape crime and Civil police per lakh population. The Pearson correlation coefficient for this relationship is 0.410 and this correlation is significant at 0.05 levels. The positive correlation we have observed between rate of rape crime and civil police per lakh population has to be interpreted with caution. The causal links in respect of this correlations need to be explored. There is a need of

study of correlation between rape crime rate and other socio-economic variables at micro level(district or police station level) to understand the relationship of rape crime rate with other socio-economic correlates.

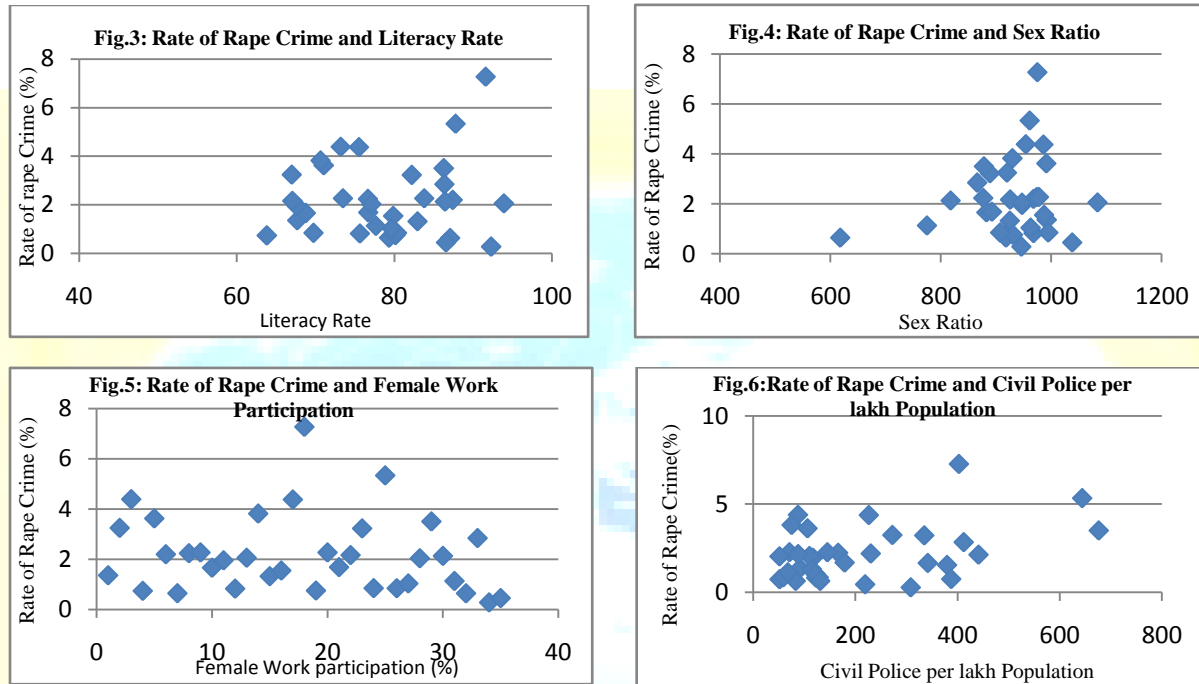


Fig:2

Conclusion

Rape is the most horrendous of the sexual offences even more disasters than murder for the victim continue to lead a traumatic life. Its gravity is not in the injury to the body, alone but in the injury to self esteem and self respect. It is no secret that women are especially disadvantaged in all strata of Indian society. Only legislation and law enforcement agencies cannot prevent the incident of crime against women. There is need of social awakening and change in the attitude of masses, so that due respect and equal status is given to women. In the present work we have tried to highlight the growing trend of crime against women especially rape crime. The rate of crime against women has increased from 17% in 2008 to 20.13% in 2012, while rate of rape crime against women increased from 0.5% in 2008 to 2.1% in 2012. The spatial analysis of official data of rape crime shows high variation among states. The five level of vulnerability have emerged

and it shows a peculiar spatial pattern of rape crime in India. Mizoram and Tripura showed the very high level of vulnerability while the category of very low level includes Gujarat, Daman and Diu, Lakshadweep and Puducherry. Most of the big states fall under low vulnerable category. The data relating to these states may be unreliable or due to big size of these states they fall in low category. The district level analysis will be helpful to understand more clear spatial pattern of rape crime. Contrary to expectations, no clear relationship could be detected between rates of rape crime and the social indicators (Literacy, sex ratio and female work participation rate). There is a need of micro level analysis for understand the relationship of rape crime with socio-economic indicators as well as determine the clear spatial pattern.

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