

BKRI Series
Occasional Paper III

**Trend in Incidences of Crime against
Women in India during 1990-2016**

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Abstract:

In India, crime against women (CAW) has become a matter of grave issue in recent years. Heinous crimes against women have brought disgrace to the country. Moreover, its continuous increase has left the civil society into great apprehension. It is not only creating hindrances in the all round development of women but also has brought threat to the whole humanity. In this paper, an attempt has been made to explore the trend in incidences of crime against women (CAW). Analysis of trend facilitates prediction based on which preventive measures can be adopted. The study has covered the incidences occurred in India during the period 1990-2016.

Key words

Crime against women, Crime Statistics, Trend analysis

Introduction:

In India, the matter of women empowerment has been pursued with great importance since independence. The constitution of India endows its citizen with gender equality in every field, but the growing violence against women proves that non-discrimination is far cry. Meanwhile number of measures has been incorporated to prevent atrocious acts against women, but on ground level, it remains a myth. According to the National Crime Record Bureau, in 2016 the rate of crime against women is 55.2 (per one lakh of female population), which is significantly higher than previous year's rate (53.9 per one lakh of female population in 2015). Delhi in this regard secured first rank based on crime rate

followed by Assam and Odisha respectively. It seems like the capital of the country itself fails to safeguard its women population. Under IPC (Indian Penal Code) section crime against women has been categorized as –dowry death, abetment of suicide, causing miscarriage without consent, death caused by act done with intent to cause miscarriage, acid attack & attempt to acid attack, cruelty by husband or his relatives, kidnapping & abduction, human trafficking, rape, attempt to commit rape, unnatural offences, assault on women with intent to outrage her modesty, and insult to modesty of women. Among all these crime heads, incidences of cruelty by husband or his relatives are highest followed by assault on women with intent to outrage her modesty (84746 cases in total) during 2016. West Bengal registered highest (19302 cases) incidences of cruelty by husband or his relatives followed by Rajasthan (13811 cases), and Uttar Pradesh (11156 cases) respectively. In case of assault on women with intent to outrage her modesty Maharashtra topped the list with 11396 such cases where Uttar Pradesh (11335 cases), and Madhya Pradesh (8717 cases) stood in second and third positions in that order. Spatial variation of such incidences has been observed over the years. Nagaland, Manipur, Mizoram, Meghalaya are some of the northeastern states where rates (calculated as crime per one lakh of female population) of crime against women are significantly lower compared to the other parts of the country. On the other hand, Assam sharing the same geographical location has emerged out as one of most unsafe places for women. This can be supported by the fact that in 2016, the state has been conferred second position based on crime rate. In northern region, Delhi has come out as most susceptible to crime against women, whereas in South-India, Andhra Pradesh and Telengana have become much unprotected for women. In eastern part,

massive incidences of CAW have occurred in Odisha followed by West Bengal as per 2016 crime report. It is important to note that regular growth in such kind of offences puts the country in shame and international disrepute. To deterrent such growth, trend analysis may play a significant role. This statistical approach produces long-term trend, pattern, and shifts over years based on previous records. Besides, it is useful in prediction too. This may help the Government as well as law enforcement agencies in adopting policies and preventive measures. In this paper, analysis of trend in incidences of crime against women has been undertaken. This discloses the pattern that India has been following for more than two decades in this regard. Further, the study explores 2016 crime report along with the calculation of some descriptive statistics.

2. Objective: The prime objective of this paper is to analysis trend in incidences of crime against women in India. The period of the study has been considered as 1990-2016. Simple descriptive statistics has also been carried out to provide better overview.

3. Methodology: The present paper entirely based on secondary data taken from National Crime Record Bureau (NCRB). Time series data on incidences of crime against women (y_t) from the year (t) 1990 to 2016 have been assembled. To approximate the type of trend, theorem on finite differences has been used. It includes calculation of following statistical test-

If y_t is a polynomial of degree n then,

$$\Delta^m y_t = \text{constant} ; \text{ if } r = n$$

$$= 0, \quad r > n$$

Where Δ is the difference operator given by $\Delta y_t = y_{t+h} - y_t$, h and r being the interval and order of difference respectively. If,

1. $\Delta y_t = \text{constant}$, straight line trend is used
2. $\Delta^2 y_t = \text{constant}$, second degree (parabolic) trend is used
3. $\Delta (\log y_t) = \text{constant}$, exponential trend is used
4. $\Delta^2 (\log y_t) = \text{constant}$, second degree curve fitted to logarithms is used.

Moreover, the coefficient of determination (i.e. R^2) has been observed for better approximation of the trend. A value of R^2 closer to one indicates higher accuracy of the fitted trend. All calculations are done using SPSS software and Microsoft Excel.

4. An overview of crime against women in India during 2016: In 2016, India witnessed spurt in violence against women all across the country. The growth of such incidences surpassed previous year's record by registering 3, 38,954 such cases in the given year.

Table 1: All India statistics of crime against women for 2015 and 2016

Crime head	Crime incidence		Crime rate		Variation in %
	2015	2016	2015	2016	2015-16
Total crime against women	3,29,243	3,38,954	54.2	55.2	2.9%

During 2016, Uttar Pradesh registered highest incidences of CAW followed by West Bengal and Maharashtra. On the other hand, rate wise, it is highest in Delhi. The report further discloses some striking facts, which have been highlighted below-

- i. Compared to the all India rate (i.e. 55.2 per one lakh of female population), places like Andhra Pradesh, Arunachal Pradesh,

Haryana, Madhya Pradesh, Odisha, Rajasthan, Telengana, West bengal, Chandigarh and Delhi recorded higher crime rates in case of violence against women.

- ii. Among all the crime heads, top four most heinous offences, based on the incidences registered are cruelty by husband or his relatives, assault on women with intent to outrage her modesty, kidnapping & abduction, and rape.

Table 2: Top four crimes against women along the states with highest such offences

Sl. No.	Crime head	Total cases reported	Major state/UT during 2016		
1.	Cruelty by husband or his relatives	1,10,378	West Bengal (19,302)	Rajasthan (13,811)	Uttar Pradesh (11,156)
2.	Assault on women with intent to outrage her modesty	84,746	Maharashtra (11,396)	Uttar Pradesh (11,335)	Madhya Pradesh (8,717)
3	Kidnapping & abduction	64,519	Uttar Pradesh (12,994)	Maharashtra (6,170)	Bihar (5,496)
4	Rape	38,947	Madhya Pradesh (4,882)	Uttar Pradesh (4,816)	Maharashtra (4,189)

- iii. West Bengal registered highest incidences of cruelty by husband and his relatives during 2016, but in terms of rate, Assam succeeded the state with 58.7 such incidences per one lakh of female population.

- iv. Under the crime head assault on women with intent to outrage her modesty, sexual harassment cases accounted for 32% (approx) of the total. Uttar Pradesh registered highest such atrocities followed by Maharashtra and Madhya Pradesh.
- v. According to the report, out of the 64,519 kidnapping and abduction cases, 52% (Approx i.e. 33,732 cases) took place to compel women for marriage. Maximum such cases are reported in Uttar Pradesh (12,070 incidences), although rate wise it is highest in Assam (29.6 per one lakh of female population). Other motives for committing kidnapping and abduction of women are murder, ransom etc.
- vi. In case of rape, women belonging to the age group 18-30 found most vulnerable. Out of 39,068 rape victims; 42% (approx) belonged the aforementioned age group.
- vii. In 95% (approx) rape incidences, perpetrators are known to the victims. The majority of them are identified as neighbors (10,520 cases) and other known persons (11,223 cases) to the sufferers. Uttar Pradesh observed maximum such cases.
- viii. In 26% (approx) of total rape incidences, victims were lured by marriage proposal. Madhya Pradesh witnessed highest number of such cases followed by Maharashtra and Uttar Pradesh.

5. Time series analysis of trend: Trend analysis has been widely used to figure out the pattern of a particular data over a specified period. The approach facilitates prediction based on which future planning and preventive measures can be adopted. It is necessary to ensure that

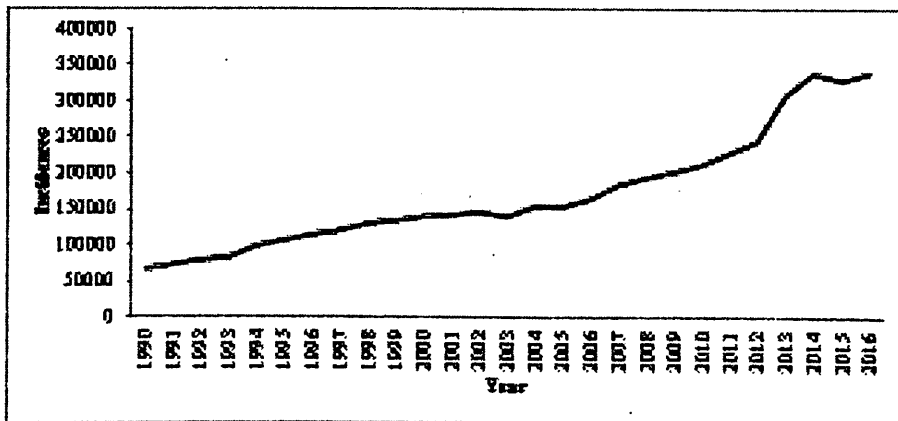
the study period is long enough; otherwise, it might mislead the policy planners by showing sudden fluctuations of the data. In this part of the study trend in incidence of crime against women in India over the period 1990-2016 has been evaluated. Apart from that, some basic statistics are also calculated to extract more information from the data. In the below table minimum and maximum of such incidences along with mean and standard deviation have been produced.

Table 3: Calculation of descriptive statistics

Crime head	Minimum	Maximum	Mean	Std. Deviation
Crime against women in India	68317	339457	172284.89	80977.373

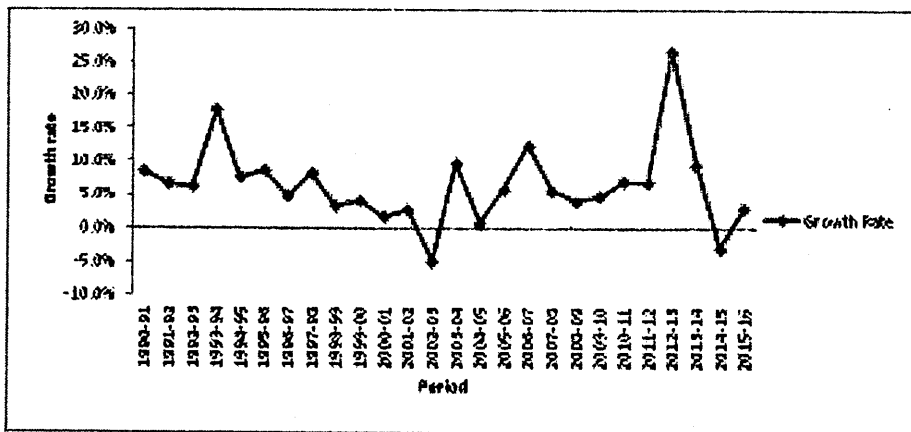
The minimum of incidences of CAW has been registered in the year 1990 whereas maximum of such cases are witnessed in 2014. However, the whopping average (172284.89) over the period 1990-16 indeed reveals the alarming situation of the country.

Figure 1: All India incidences of CAW (1990-2016)



The figure 1 shows that the incidences of crime against women have continuous growth with periodic ups and downs during 1990-16. One witnessed significant increase in the year 2013. The escalation continues to the next year. Although there is a sudden fall in 2015, but incidences persist to rise immediately. During the study period, more positive percentage of variations has been observed. One witnessed highest such variation during 2012-13, (i.e. 26.7%).

Figure 2: Percentage of variation in incidences of CAW over 1990-2016



The above diagram shows fluctuations in variation over the period 1990-16. Less negative variations indicate that incidences of CAW are not in control. However, it is worthy to mention that the growth in such incidences has come down significantly during 2015-16 as compared to 2012-13.

In order to approximate the type of trend, the data on incidences of CAW for each year of 1990-2016 has been entered SPSS. The theorem on finite differences has been applied to approximate the trend. The data shows consistency after calculation of $\Delta (\log y_t)$. It means exponential trend best fit the data. In the figure 2, exponential trend along with observed values have been drawn.

Figure 3: Trend in incidences of CAW

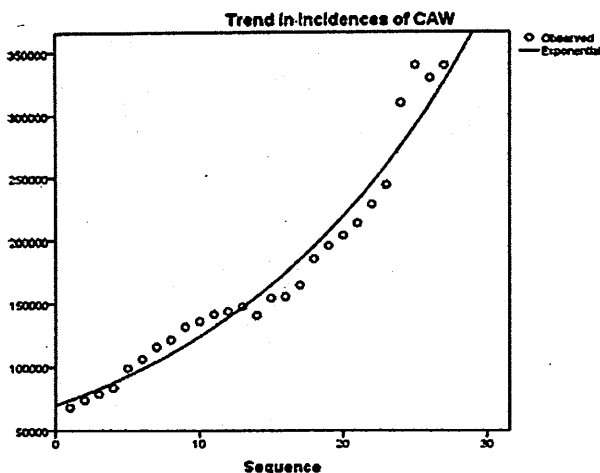


Table 4: Model summary

Equation	Model Summary		
	R Square	F	Sig.
Exponential	.967	729.109	.000

It is clearly visible from the above figure that, observed values are well scattered around the line with no such significant outliers. This replicates precision of the trend. Moreover, a coefficient of variation (R^2) closer to 1 (i.e. 0.967) justifies how well the trend fits the data.

4. Conclusion: The above discussion brings out the fact that violence against women has been increasing rapidly. Most importantly it starts from the home itself as highest such cases have been registered under the crime head cruelty by husband or his relatives. This is the part where Government and law enforcement agencies do not have much control. It is because they cannot inspect each home to prevent such offences. Women in such cases have to be fearless and well

informed to raise their voice leaving behind all kind of hesitations. Government in this regard must try to implicate fast tracking of such offences by providing sufficient manpower, logistics, and infrastructure to the fast track courts. Rather subjugating women's participation, they should be encouraged to take part in every possible field. Among the prevailing disheartening situations, there is a silver lining. Due to the growing awareness, women now a day feel less reluctant to come forward and ask for their justice. Registration of cases is also increasing because women have learnt to stand against any hostility. The prevention of crime against women is a joint effort of both government and people of the country. Disrespect of women in any society is a matter of shame. The issue does not only harm a particular gender but it is a warning to the whole civilization. Therefore as a dutiful citizen, everyone should contribute his or her part to prevent such offences.

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