# CORRELATION BETWEEN DEMOGRAPHIC STRUCTURE AND CRIMES AGAINST WOMEN: A STUDY OF BIKANER DIVISION, RAJASTHAN

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**ABSTRACT**

Even after 75 years of independence, there has been no change in the trend of crimes against women in India. As women are moving forward on the path of development by becoming self-reliant, they are tortured by bigoted and conservative mentality men, thereby breaking the morale of women. Apart from this, many other reasons also affect the atrocities against women, demographic structure is also an important factor. In the presented research paper, the researcher has tried to know the correlation between crimes against women and demographic structure in the study area Bikaner division. This research paper is based on a study conducted in Bikaner division of Rajasthan state. Bikaner division comprises Sriganganagar, Hanumangarh, Bikaner and Churu districts of northern Rajasthan. The study area is located in the western desert part of Rajasthan from a physical point of view. The study area is located between 28° 1' 37" north latitude to 30° 12° north latitude and 73° 30° east longitude to 74° 57' 59' east longitude. This research paper is based on secondary data, which uses crimes against women and demographic data. The linear regression analysis has been used by the researcher to check the veracity of his hypotheses. The analysis of the data shows that while there is no correlation between population distribution and crimes against women in the study area, on the other hand, there is a positive correlation between sex ratio, literacy, working population and crimes against women. Therefore, the Government should try to improve the qualitative aspect of the population in the study area to control crimes against women.

**Keywords:** Gender Violence, Dowry Death, Abduction, Outraging Modesty and Rape.

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## Introduction

India is celebrating the 'Amrit Mahotsav of Independence' with great enthusiasm for the completion of 75years of independence. The socio-economic change that is taking place all over India today is being seen as 'New India'. But, about women, the situation remains the same. While subjects like equality, freedom, development and social justice are constantly being discussed in this new India, it is ironic that half of the country's population is still forced to bear the various crimes against them. Women, who have been considered in Indian scriptures as a form of power and prosperity, are themselves apprehensive about their safety today. Crimes like Murder, Rape, Dowry Death, Kidnapping, Sexual Violence and Assault are seen day by day with women and our society has also become tolerant of these crimes now. There is no anger against crimes against women in Indian society. This is the reason why the morale of anti-social elements who commit crimes against women is increasing day by day.

If we look at the data on atrocities against women, it is clear that most of the crimes against women are due to a patriarchal mindset, inferiority complex towards women and prejudice and all three reasons are linked to our social and cultural system in some way or the other. Among them, our religious

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system, ethnic system, beliefs, stereotypes and historical background are prominent. Similarly, the demographic structure is also a major part of this social and cultural system. Therefore, in the presented research paper, the researcher has tried to find out the correlation between demographic structure and crimes against women. For this purpose, the researcher has included population distribution, sex ratio, literacy rate and working population factors of demographic structure. The main objective of this research paper is to know whether population distribution, sex ratio, literacy and occupational structure are related to crimes against women. That is, if there is any change in the number of demographic factors mentioned above, then does the number of crimes against women also change due to it?

**Study Area**

This research paper is based on a study conducted in Bikaner division of Rajasthan state. Bikaner division comprises Sriganganagar, Hanumangarh, Bikaner and Churu districts of northern Rajasthan. The study area is located in the western desert part of Rajasthan from a physical point of view. The study area is located between28° 1' 37" North Latitude to 30° 12° North Latitude and 73° 30° East Longitude to 74° 57' 59' East Longitude.

**Map-1**

Bikaner City is the district headquarters as well as the divisional headquarter. Due to the adverse climatic conditions, the socio-economic development of the study area has been very slow. Hanumangarh and Sriganganagar are the northern two districts of the Bikaner division, where adequate irrigation facility is available through Indira Gandhi and Gang Canal. The Indira Gandhi Canal flowing here has had a significant impact on the socio-economic structure of the study area. In Map-1, the Bikaner division is displayed-

**Research Methodology**

The presented research paper is based on secondary data, which uses data related to crimes against women and the population of study area. While the data on crimes against women has been obtained from the official website of the National Crime Records Bureau (NCRB), the population data has been obtained from the official website of the Census of India. The following hypotheses have been determined for the present study, namely-

- There is no correlation between population distribution and atrocities against women in the study area.

- There is a positive correlation between the sex ratio and atrocities against women in the study area.

- There is a positive correlation between literacy and atrocities against women in the field of study.

- There is a positive correlation between the working population in the study area and the atrocities against women.

The linear regression analysis has been used by the researcher to check the veracity of the above hypotheses such as:

$Y = a + bx$

Here-

b        =slope

α        =y-intercept

y        =y- coordinate

x        =x-coordinate

In this research paper, linear regression analysis has been calculated through 'Microsoft Excel, 2019' and the map has been constructed through opensource GIS software 'QGIS Desktop 3.24.3'.

**The Demographic Structure of the Study Area**

The total population of the study area is 81,47,344, with the highest population being 23,63,937 in Bikaner district and the minimum population being 17,74,692 in Hanumangarh district. The total male population in the study area is 42,66,771 (52.37%), with the highest male population being 12,40,801 (52.49%) in Bikaner district, while the minimum male population is 9,311,84 (52.47%) in Hanumangarh district. In addition to these, the male population in Sriganganagar district in the study area is 10,43,340 (52.98%) and the male population in Churu district is 10,51,446 (51.55%). The female population in the study area is 38,05,073 (47.63%), with the highest female population being 11,23,136 (47.51%) in Bikaner district, while the minimum female population is 8,43,108 (47.53%) in Hanumangarh district. Among other areas, Sriganganagar district has a total population of 9,25,828 (47.02%) and Churu district has a female population of 9,88,101 (48.45%). Table-1 shows the population distribution in the study area.

**Table 1: Distribution of Population in Bikaner Division, 2011**

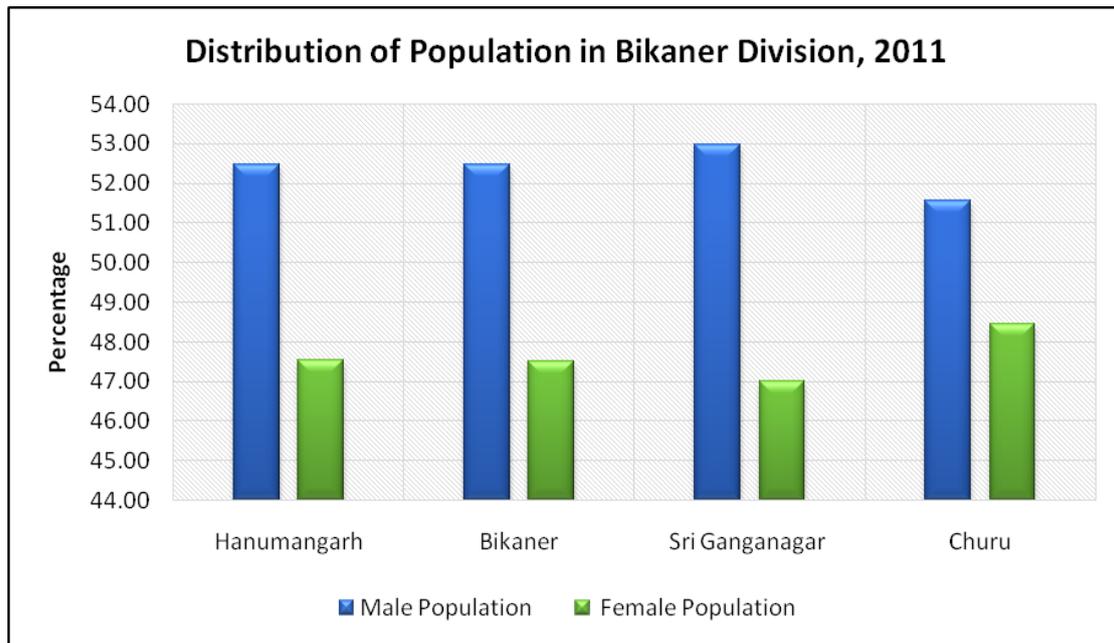| District | Total Population | Male Population | | Female Population | |
|---|---|---|---|---|---|
| | Absolute | Absolute | Percentage | Absolute | Percentage |
| Hanumangarh | 1774692 | 931184 | 52.47 | 843508 | 47.53 |
| Bikaner | 2363937 | 1240801 | 52.49 | 1123136 | 47.51 |
| Sriganganagar | 1969168 | 1043340 | 52.98 | 925828 | 47.02 |
| Churu | 2039547 | 1051446 | 51.55 | 988101 | 48.45 |
| Total | 8147344 | 4266771 | 52.37 | 3880573 | 47.63 |

Source: Census of India, 2011

**Fig. 1**

Sex ratio refers to the number of females per 1000 males. Sex ratio is of special importance under population studies, as sex ratio is studied in preparing projections of birth rate, migration, mortality rate, population functioning etc. in future. If we look at the regional distribution of sex ratio in the study area, it is clear that the sex ratio in the study area is 910, with the highest sex ratio being 940 in Churu district and the lowest sex ratio being 887 in Sriganganagar district. The sex ratio in Hanumangarh district is 906, in Bikaner district it is 905. Table-2 displays the distribution of sex ratio in the study area, which shows that the sex ratio in the study area is very low, which is a worrying situation from a demographic point of view.

**Table 2: Distribution of Sex Ratio in Bikaner Division, 2011**

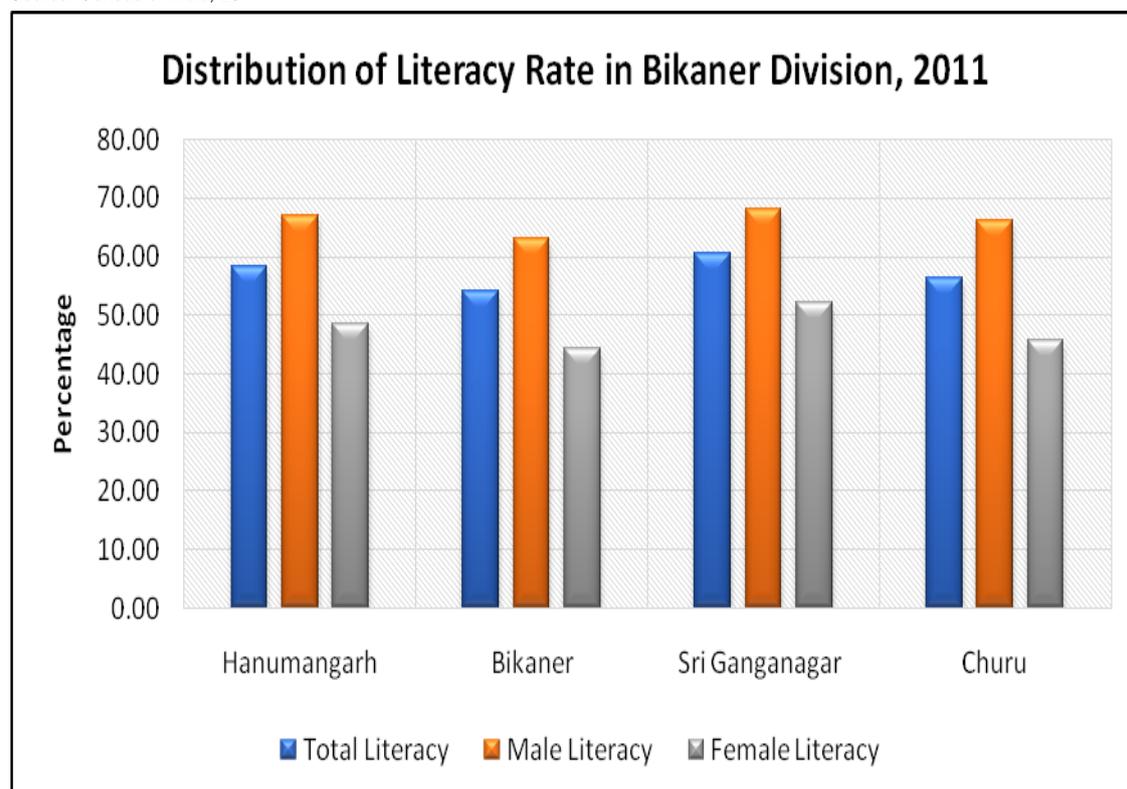| District | Sex Ratio (Female Per 1000 Male) |
|---|---|
| Hanumangarh | 906 |
| Bikaner | 905 |
| Sriganganagar | 887 |
| Churu | 940 |
| Average | 910 |

Source: Census of India, 2011

Literacy is the personal quality that reveals a person's ability to read and write. Literacy enhances the ability of a human being to think, think and act and motivates him towards innovative discoveries, paving the way for the social, economic and cultural progress of the individual. The importance of literacy is paramount in removing superstition, orthodoxy, religious fanaticism, social discrimination, poverty etc. prevailing in the society. Literacy literally means the quality of a person being literate (lettered). A literate person in the general sense is one who knows how to read and write in a language. Hence, letter knowledge is an essential condition for being literate. In the Indian census, only a person aged 7 years and above has been considered literate.

The total literacy in the study area is 57.14%, with the highest literacy being 60.60%in Sriganganagar district, while the minimum literacy is 54.10%in Bikaner district. Male literacy in the study area is 65.96%, with the highest male literacy being 68.14%in Sriganganagar district, while the lowest male literacy is 63.06%in Bikaner district. Female literacy in the study area is 47.45%, with the highest female literacy being 52.11%in Sriganganagar district and the minimum female literacyat 44.20%in Bikaner district. It is thus clear that the literacy situation in the study area is highly worrisome. Table 3 shows the distribution of literacy within the study area.

**Table 3: Distribution of Literacy Rate in Bikaner Division, 2011**

| District | Total Literacy | | Male Literacy | | Female Literacy | |
|---|---|---|---|---|---|---|
| | Absolute | Percentage | Absolute | Percentage | Absolute | Percentage |
| Hanumangarh | 1034136 | 58.27 | 624281 | 67.04 | 409855 | 48.59 |
| Bikaner | 1278801 | 54.10 | 782399 | 63.06 | 496402 | 44.20 |
| Sriganganagar | 1193343 | 60.60 | 710908 | 68.14 | 482435 | 52.11 |
| Churu | 1149269 | 56.35 | 696729 | 66.26 | 452540 | 45.80 |
| Total | 4655549 | 57.14 | 2814317 | 65.96 | 1841232 | 47.45 |

Source: Census of India, 2011



**Fig. 2**

The total working population of an area is called occupational population. The occupational structure of a population residing in any area is the qualitative ability of the population. This is the standard of human development. In fact, whatever economic activities are taking place in the country, the credit goes to this section of the population. In the occupational structure of the population, the population is mainly divided into two parts - the working population and the non-functional population.
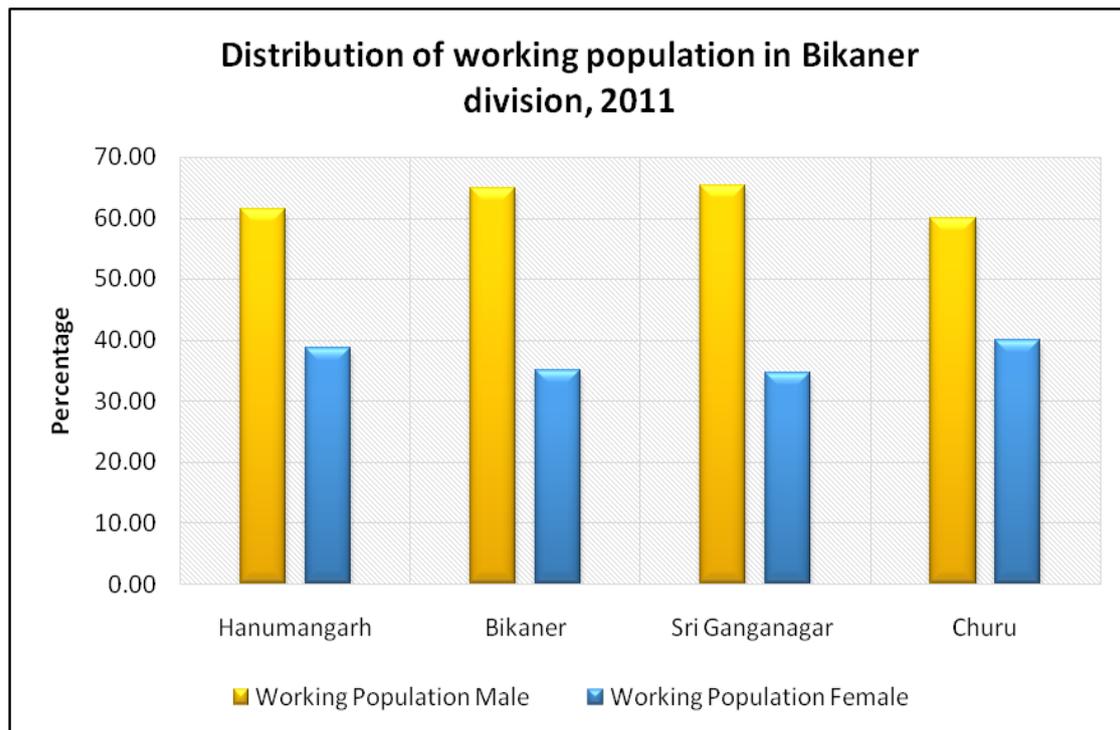
Working population refers to the class of population whose age is between 16 and 59 years and who has been engaged in some economic activity during any period of the year, while working population refers to the class of population in which children below the age of 16 years, Old and sick persons are included.

The total working population in the study area is 36,36,969, of which the highest working population is 9,86,208in Bikanerdistrict, while the minimum working population is 8,35,260in Hanumangarh district. The total male working population in the study area is 22,91,98 (62.99%),with the highest male working population being6,40,572(64.95%) in Bikaner district, while the minimum male working population is 5,12,802(64.95%) in Hanumangarh district. 61.39%). The female working population in the study area is13,45,871(37.0%),with the highest female working population being 3,14,025(40.03%) in Churu district, while the minimum female working population is 3,16,352(37.03%) in Sriganganagar district. 34.66%).

**Table 4: Distribution of working population in Bikaner division, 2011**

| District | Total Working Population | Male Working Population | | Female Working Population | |
|---|---|---|---|---|---|
| | Absolute | Percentage | Absolute | Percentage | Absolute |
| **Hanumangarh** | 835260 | 512802 | 61.39 | 322458 | 38.60 |
| **Bikaner** | 986208 | 640572 | 64.95 | 345636 | 35.04 |
| **Sriganganagar** | 912672 | 596320 | 65.33 | 316352 | 34.66 |
| **Churu** | 902829 | 541404 | 59.96 | 361425 | 40.03 |
| **Total** | 3636969 | 2291098 | 62.99 | 1345871 | 37.00 |

Source: Census of India, 2011



**Fig. 3**

**Crimes Against Women In the Bikaner Division**

If we look at the data of the year 2019-20 published by the National Crime Records Bureau (NCRB)[i] in the study area, it is clear that the highest number of crimes against women in the study area take place in women's homes, a total of 2731 cases of cruelty by husband or relatives were registered under Section 498A of IPC in the study area. The highest number of cases are in Sriganganagar district at 914 and the lowest at 464 in Churu district. After this, the highest number of cases of crime against women in the study area were registered at 880 rape cases under Section 376 of the Indian Penal Code, out of which the highest cases are 248 in Sriganganagar district and the minimum cases are 159 in Churu district. Subsequently, 750 cases were registered in the study area under Section 354 of the Indian Penal Code for attacks on women with intent to outrage their modesty through the internet, with the highest number of cases being reported in Sriganganagar district at 251 and the minimum at 71 in Churu district. The study area recorded 448 cases of kidnapping of women, with the highest number of cases being reported from Sriganganagar district at 167 and the minimum at 80 in Churu district. In the study area, a total of 128 cases were registered for attempts to rape under Section 376/511 of the Indian Penal Code. In the study area, in the year 2019, a total of 55 cases were registered under section 304B of IPC for dowry killings, with the maximum number of cases being 19 in Hanumangarh district and the minimum number of cases being 10 in Bikaner district. Further, cases of other crimes against women in the study area are almost negligible. Table 5 shows the number of criminal cases against women in the study area:

**Table 5: Number of Crimes Committed against Women, 2019-20**

| Crime Against Women | Bikaner | Ganganagar | Hanumangarh | Churu | Total |
|---|---|---|---|---|---|
| Murder with Rape/Gang Rape | 0 | 0 | 0 | 0 | 0 |
| Dowry Deaths (Sec. 304B IPC) | 10 | 13 | 19 | 13 | 55 |
| Abetment to Suicide of Women (Sec. 305/306 IPC) | 7 | 6 | 5 | 4 | 22 |
| Miscarriage (Sec. 313 & 314 IPC) | 0 | 0 | 0 | 0 | 0 |
| Acid Attack (Sec. 326A IPC) | 0 | 1 | 0 | 0 | 1 |
| Attempt to Acid Attack (Sec. 326B IPC) | 0 | 0 | 0 | 0 | 0 |
| Cruelty by Husband or his relatives (Sec. 498 A, IPC) | 607 | 914 | 746 | 464 | 2731 |
| Kidnapping & Abduction of Women | 106 | 167 | 95 | 80 | 448 |
| Rape (Sec. 376 IPC) | 227 | 248 | 196 | 159 | 830 |
| Attempt to Commit Rape (Sec. 376/511 IPC) | 37 | 51 | 30 | 10 | 128 |
| Assault on Women with Intent to Outrage her Modesty (Sec. 354 IPC) | 200 | 251 | 228 | 71 | 750 |
| Insult to the Modesty of Women (Sec. 509 IPC) | 0 | 3 | 6 | 1 | 10 |
| Dowry Prohibition Act, 1961 | 0 | 1 | 0 | 0 | 1 |
| Immoral Traffic (Prevention) Act 1956 (Women Victims cases only) | 0 | 1 | 0 | 0 | 1 |
| Cyber Crimes/Information Technology Act (Women Centric Crimes only) | 0 | 1 | 0 | 0 | 1 |
| Protection of Children from Sexual Violence Act (Girl Child Victims only) | 42 | 11 | 3 | 0 | 56 |
| Total | 1236 | 1668 | 1328 | 802 | 5034 |

Source: Official Website of NCRB, 2022

**Correlation between Demographic Structure and Crimes Against Women**

It is noteworthy that the researcher has used population distribution, sex ratio, literacy and working population factors to find out the correlation between demographic structure and crimes against women in the study area. As the researcher has admitted in his first hypothesis, there is no correlation between population distribution in the study area and atrocities against women. Examining the veracity of this hypothesis, the researcher has found a simple linear regression between the district-wise total crimes against women and the district-wise population distribution in the study area. Here the population distribution is considered as the 'independent variable' (X), while crimes against women are considered as the 'dependent variable' (Y). Finding the simple linear regression between the two variables shows that the correlation between the two variables is 0.207, the F-testis 0.09 and the significance of F is 0.792. Here the value of the significance of Fis higher than the value of the F-test, so the researcher's first hypothesis turns out to be true that there is no correlation between population distribution and crimes against women.

In his second hypothesis, the researcher has assumed that there is a positive correlation between the sex ratio in the study area and the atrocities against women. To check the veracity of this hypothesis, the sex ratio has been considered as the independent variable (X) by the researcher, while crimes against women have been considered as the dependent variable (Y). Finding the simple linear regression between the two variables makes it clear that there is a very positive correlation between the two variables. The correlation between these two variables is 0.983, the F-testis 59.65 and the significance of F is 0.016. Here the value of significance of Fis less than the value of the F-test, so here the researcher's hypothesis turns out to be true, there is a positive correlation between the two variables i.e. if the level of sex ratio changes in the study area, then there is a 98% probability that the number of crimes against women will also change accordingly.

**Table 6: Important Statistical Values Obtained from Linear Regression Analysised ited to Check the Veracity of hypotheses**

| Speculation | Multiple R / Correlation | R Square | Standard Error | df | F Test | Significance F |
|---|---|---|---|---|---|---|
| First | 0.208 | 0.043 | 427.16 | 3 | 0.090 | 0.792 |
| Second | 0.984 | 0.968 | 78.65 | 3 | 59.65 | 0.016 |
| Third | 0.758 | 0.575 | 284.71 | 3 | 2.705 | 0.242 |
| Fourth | 0.772 | 0.596 | 277.58 | 3 | 2.950 | 0.228 |

Source: Self-calculation

In his third hypothesis, the researcher has assumed that there is a positive correlation between literacy and atrocities against women in the study area. To check the veracity of this hypothesis, literacy has been considered as the independent variable (X) by the researcher, while crimes against women have been considered as the dependent variable (Y). Simple linear regression between the two variables on recalling, it is clear that there is a correlation between the two variables with positive. The correlation between the two variables is 0.758, the F-testis 2.705 and the significance of F is 0.241. Here the value of the significance of F is less than the value of the F-test, so here the third hypothesis of the researcher turns out to be true. If the level of education in the study area changes, there is a 75% chance that the number of crimes against women will also change accordingly.

In his fourth and final hypothesis, the researcher has assumed that there is a positive correlation between the working population in the study area and atrocities against women. To check the veracity of this hypothesis, the researcher has considered the working population as independent (X), while crimes against women have been considered as the dependent variable (Y). Finding the simple linear regression between the two variables makes it clear that there are positive correlations between the two variables. The correlation between the two is 0.777, the F-testis 2.950 and the significance of F is 0.227. Here the value of the significance of Fis less than the value of the F-test, so here the fourth hypothesis of the researcher turns out to be true. If the level of the working population in the study area changes, there is a 77% chance that the number of crimes against women will also change accordingly.

**Conclusion**

It is clear from the above discussion that there is a great correlation between demographic structure and crimes against women. But this correlation is not seen with all demographic programs. The qualitative aspect of the population such as sex ratio, literacy, working population, etc. is associated with factors such as crimes against women, it is clear that if the number of crimes against women in the study area is to be reduced, then we have to reduce the demographics of the study area. The qualitative aspects of the structure have to be given importance. We have to strive that the level of sex ratio in the study area is in line with the expected standards. Similarly, we have to focus adequately on education. The level of education in the study area is highly worrisome, so serious efforts must be made for the development of the level of education here. Along with education, it is also necessary that the level of working population in the study area is increased, for this, the rate of unemployment in the study area has to be controlled.

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