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Spatial Pattern and Trend Analysis of Rape Incidences in Ajmer City of Rajasthan



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Abstract

"When women is fully involved, the benefits can be seen immediately; families are healthier and better fed; their income, savings and reinvestment go up and what is true of families is also true of communities, and, in the long run, of whole world" (Kofi Annan).

Urbanization as considered from the economic aspect is good as it facilities achievement of economics and thus promotes growth of industries and development in the economy. However, taking the social perspective, urbanization has lead to crimes as is evident from the fact that rate of crime is higher in many large cities. The rapid pace of population increase and urbanization throughout the world has thrown up new challenges for governments, and their homes and lives, but also has posed many problems for their citizens. Women today face the fear of molestation, domestic violence and sexual as a constant threat to their ability to move around, to work and their general well-being. In Ajmer city, due to various reasons like over population, poverty, unemployment, and traffic congestions etc the crime is increasing day by day. Criminal offence is an act harmful not only to some individual, but also to the community or the state. The present study attempts crime mapping of Ajmer city with GIS approach. The major objective is to generate crime maps and to identify the intensity and pattern of rapes in Ajmer city. It also undergoes time series analysis to identify change detections. A base of which is data collection though S.P office, Crime Branch and different *Thanas* of Ajmer city (2011-2017), and also through official website, like National crime records bureau, Statistical Department and Nagar Nigam(ward boundary), Landsat 8, Satellite Image cartosat data, Ajmer. Software used are Q-GIS 2.18, EDAS software version 9.1 and ARC GIS 10.2 for land use land cover, Road network delineation, Base map, for crime mapping, Location Analysis of Rape incidences, for population Map and Ward wise boundary Map. Crime is an unlawful act which is punishable by some authority. Breaking the laws of society gives birth to crime and our judiciary has right and duty also to punish the person or institution found guilty. According to I.P.C 1860 rape, kidnapping, verbal or physical abuse are the acts of crime. Crime against women includes, abuse, rape, dowry, sexual harassment, sex trading etc.

Keywords: Urbanization, Crime Mapping, GIS, Location Analysis, Sex Trading.

Introduction

Since ancient times, the condition of women is challenging. Still in society, women do not get the same status as men and there are many negative elements in the society, who commit crimes against women. Crime against women is an ever increasing problem. This problem has been growing more acute in India during the recent years. Crime against women includes violence against women, rape, molestation, dowry, sexual harassment, wife battering, kidnapping, to be sold into brothel homes, forcible embracement and eve teasing. Women, therefore in Rajasthan are surrounded by many conspiracies. From the beginning, women are considered as the weaker sex therefore even in Rajasthan the situation of women is equally objectionable.

Objectives of the Study

In ordinary language crime is an unlawful act, punishable by states of other authority. The term crime does not have any simple and universally accepted definition though statutory definition has been provided for certain purposes in modern criminal law. The most popular

view is that crime does not have provided for certain purposes in modern criminal law.

1. To undertake Crime Mapping of Rape incidences (*Thana Wise*) in Ajmer City of Rajasthan from (2011-2017).
2. To examine and interpret spatial pattern and trends of crime incidences in the Ajmer city.
3. To promote and propagate the Safe City concept in Ajmer city.
4. To understand and analyse the factors affecting crime incidences against women in the different police station of Ajmer city from the year 2011 to 2017.

Study Region

Ajmer is the district of Rajasthan State. Ajmer city is a city of Ajmer district and the headquarter of district. Ajmer City is a religious and tourist place. It is surrounded by NH-8, NH-14, NH-79, and NH-89. It has nine Police Stations and one Mahila Police Station. All Nine Police Station Boundary of Ajmer City has been Selected for Study. Ajmer City stretches from 26°26' North to 26°23' North and 74°36' East to 74°40' east

It is known, that since ancient times women's status is questionable. In society, women do not get the same status as men receive and there are many negative elements in the society that have committed crime against women. Due to the reasons murder of the dowry victim against women is causing the violence of domestic violence, etc., back to the existence of women, hence, the Ajmer city. The women are considered to be the objects of use, so the situation of women in Ajmer is equally objectionable, where there is lack of literacy and factors which are responsible for crime against women in Ajmer. It is responsible, such as urbanization, poverty, illiteracy, population; working women are the main factors which are beneficial for crimes against women, community remains defiantly opposed to change, and about the effects on victim.

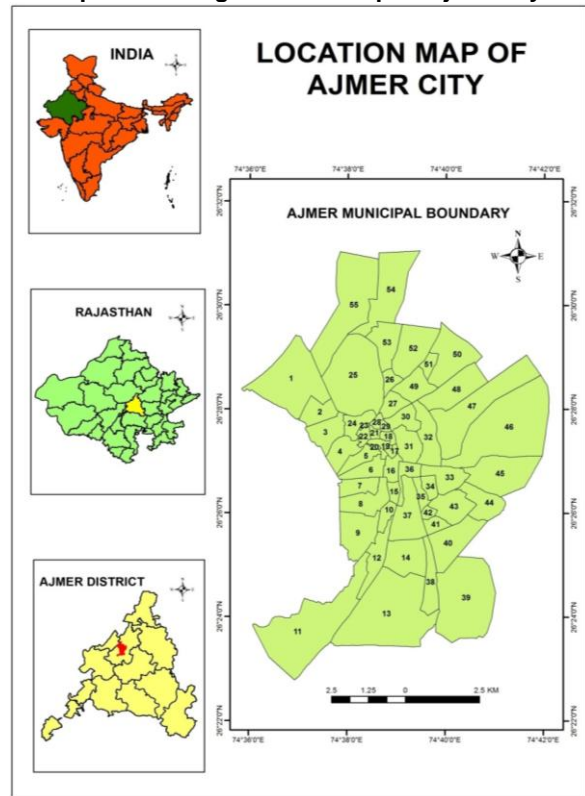
Police Station of Ajmer City

1. Civil lines Police Station
2. Clock tower Police Station
3. Ganj Police Station
4. Dargah Police Station
5. Alwargate Police Station
6. Kotwali Police Station
7. Adarshnagar Police Station
8. Ramganj Police Station
9. Christianganj Police Station

Ajmer is situated in the cradle of the Aravalli mountain ranges in the centre of Rajasthan State, surrounded by three hills of Aravalli Ranges i.e. Nag hills, Madar hills & Taragarh hills at an average of 486.0 meters above MSL. The natural topography has resulted in creation of a number of water bodies which form an integral part of the city today. Anasagar, which forms the focal point of the city, was created during the rule of Anaji (after whom the lake was named) by building a dam across the Bandi River. Anasagar acted as the natural boundary in the north-west direction and the city historically grew towards the southern direction, downstream the lake created

by the dam. The city has excellent connectivity, both road and rail, within the State and beyond. The city locational significance, as a sub-regional centre for trade and commerce, can be understood by the fact that it serves as an intersection point for three National Highways (NH 8, NH 79 and NH 89). NH 8 connecting Delhi - Mumbai bifurcates the city, northeast to southwest. NH 79 and NH 89 originate from Ajmer, and connect to Bhilwara and Bikaner respectively. The city is served by a By-pass Road along NH 8, to facilitate movement of heavy traffic. Other major roads include state highway roads, connecting to Ararka and Pushkar. The city serves as an important railway junction along the recently upgraded Delhi-Ahmadabad Broad Gauge Line. Apart from this, the city has served as base for a major Railway Workshop, which houses activities like manufacturing, repairs and modification of railway coaches.

Map 1: Showing Location Map of Ajmer city



The area of my study region is Ajmer which is situated in north-western part of Rajasthan. It is the heart of Rajasthan which is having an area of (8,481) sq km² and a population of (542,321) in the city, (551,101) including its suburbs. Ajmer is the northwest section of India and is surrounded by the Aravalli Mountains. It is a pilgrimage centre for the shrine of the Sufi Saint Khwaja Moinuddin Christi and also the base for visiting Pushkar (11 km), an ancient Hindu pilgrimage city, famous for the temple of Lord Brahma. It is situated on the lower slopes of the Taragarh Hill of that range. The massive rocks of Nagpaharh range protect Ajmer from the Thar Desert to the west. Ajmer has been selected as one of the

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heritage cities for the HRIDAY – Heritage City Development and Augmentation Yojana scheme of Government of India. Ajmer Development Authority (ADA), Ajmer Municipal Corporation (AMC). Nearest city of Ajmer is Jaipur, Udaipur and Jodhpur.

Data and Methods

Today we all know that crime against women is prevailing from the beginning of time, so in a city like Ajmer, where women are considered as objects of use from the beginning, they are given more importance to men, what is the crime against it The situation of women is a question, so the objectives laid down for my research have been done keeping in mind the status of women in Ajmer, to know that Which factors are responsible for crime against women in Ajmer, and what is the crime of crime in the last seven years against women, which means that the factors for each police station of the city. What is the situation of crimes committed against women, what is the situation of crime against women presently, and the study method of research done by me to reach the suggestions and findings to remove them is based on empirical and numerical and so by research, Data received has been obtained through synthesis and analysis and on the basis of various techniques, data has been obtained. This data proves that what the factor which is responsible for crimes is.

Data Used

1. The crime incidents data is collected from the SP Office, Crime Branch & each Police station of Ajmer city from 2011 to 2017.
2. Police boundary map of Police station
3. Census data & ward map were collected from Statistical department & Nagar Nigam of Ajmer. Satellite data – Landsat 8 data for road network delineation
4. Base map :Digitize from Toposheet
5. Police boundary map of Police station
6. Base map :Toposheet of Ajmer
7. Census data & ward map were collected from Statistical department & Nagar Nigam of Ajmer. Satellite data – Landsat 8 data for road network delineation.

Software Used

ERDAS 9.1 - The ERDAS IMAGINE software provides the functions of both image processing and geographic information systems (GIS). These functions include importing, viewing, altering, and analyzing raster and vector data sets

ARC-GIS 10.2 - ArcInfo is the most complete and extensible GIS available. It includes all the functionality of ArcView and ArcEditor and adds advanced geoprocessing and data conversion capabilities. Professional GIS users use ArcInfo for all aspects of data building, modeling, analysis, and map display for screen and output. ArcView is full-featured GIS software for visualizing, analyzing, creating, and managing data with a geographic component.

GPS Path Finder - The GPS Pathfinder Office software, together with its associated utilities, provides all the functionality you need to manage and process data collected using Trimble Mapping and GIS data collection systems. It provides all of the tools

that you need to correct, view, and edit Global Positioning System (GPS) data collected in the field, and to export it in a format suitable for your GIS, CAD, or database system.

Review of Literature

Natalia Sypion & Leitner (2017), highlights, there is a strong influence of land use is limited to their immediate surroundings – strongly attracting crime spots are alcohol outlets, cultural facilities, commercial buildings, bars and low income housing colonies; in contrast, depots-transports, gardens, grand stands are strongly detracting.

Napoleon & S., (2017), 'Crime is a major issue, where an efficient analyzes of different remote sensing techniques are accomplished for crime investigation by crime investigation agencies'. One of the major activities that have to be performed by crime investigation department are mitigation of hot spot locations where the number of crimes happening more.

Shahebaz & Kale, (2014), 'Geospatial data also known as geographically referenced data defines both the location and the characteristics of the piece called spatial feature which may contain of roads, land extents, and vegetation on the Earth surface'.

Olajuyigbe, Omole, Bayode, & Adenigba, (2016), considers, GIS as the study of the area through mapping liable to crime both spatial and statistical analyses using the appropriate tools such as neighbourhood and correlation analysis, respectively.

Sangamithra, Kalaikumaran, & Karthik, (2012), envisages, GIS permits police force to plan meritoriously for emergency response, decide mitigation priorities, analyse historical events, and forecast future events.

Result and Discussion

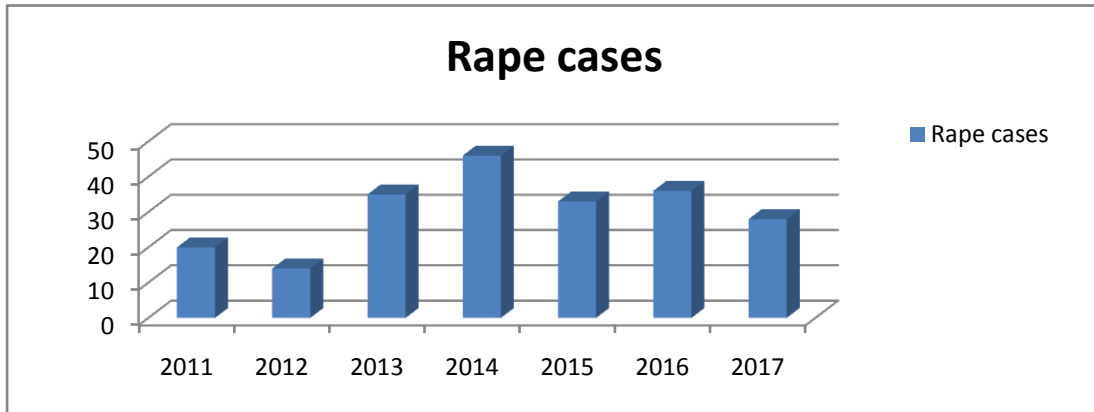
The data has been collected from Nine Police Station and S.P Office of Ajmer City. Newspaper, articles and published articles has been referred to acquire the result of the findings.

Table 1: Total Rape Cases of Ajmer City

	Year	Rape cases
1.	2011	20
2.	2012	14
3.	2013	35
4.	2014	46
5.	2015	33
6.	2016	36
7.	2017	28

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Figure 1: Showing the total rape incidences of the following years



This table shows the total rape incidences registered in Ajmer city of various Police stations from the year 2011 to 2017. As maximum rape incidences registered in the year 2014 or we can see this the figure 1 which also shows thw maximum rape cases is in the year 2014.

In the above table the data have been collected from civil lines Police Thana of the rape incidences that occurred or registered from year 2011 to 2017. In that particular area. As you can see in the graph below maximum rape cases registered in Alwar

gate Police Station. Because this station is situation towards the east of the Ajmer city. Here travellers come across the Rajasthan so that is the reason it is having maximum rape cases in this Police Station. As compared to other 8 Police Stations of Ajmer city. 2nd highest rape incidences took place in the christianganj Police station as it is located towards the north of the Ajmer city. Followed by Kotwali , Ramganj and Dargah Police station. There is no rape case in the Ganj and Adrash Nagar Police Station.

Map 2: Showing Total crime of Rape in Ajmer city (2011-2017)

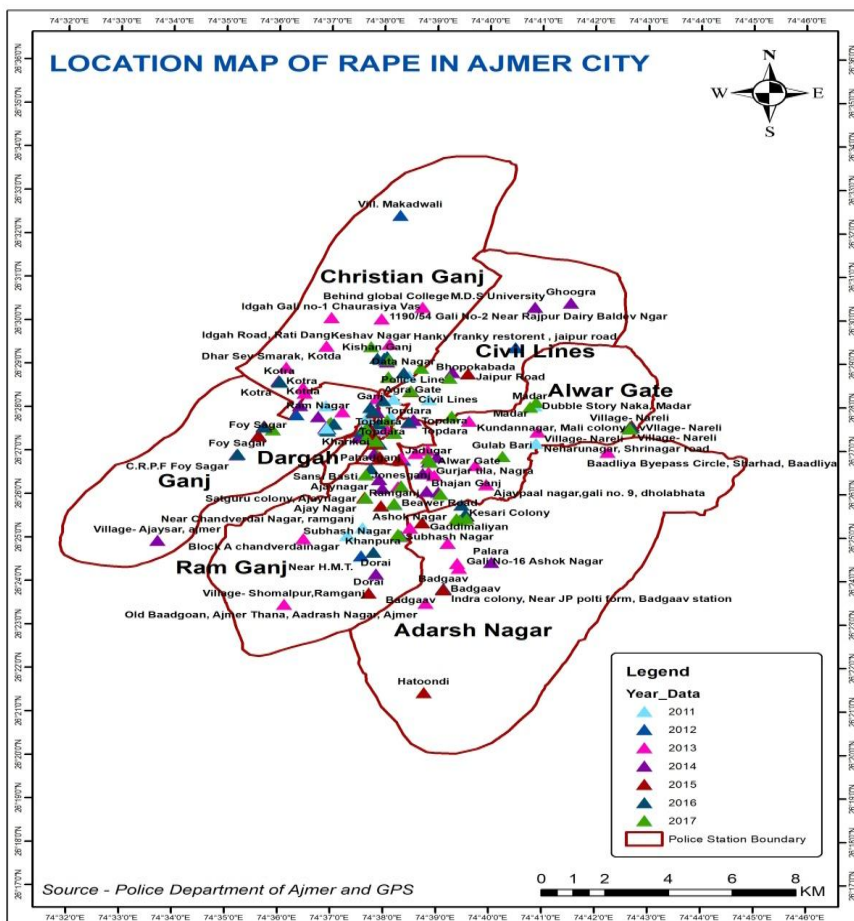
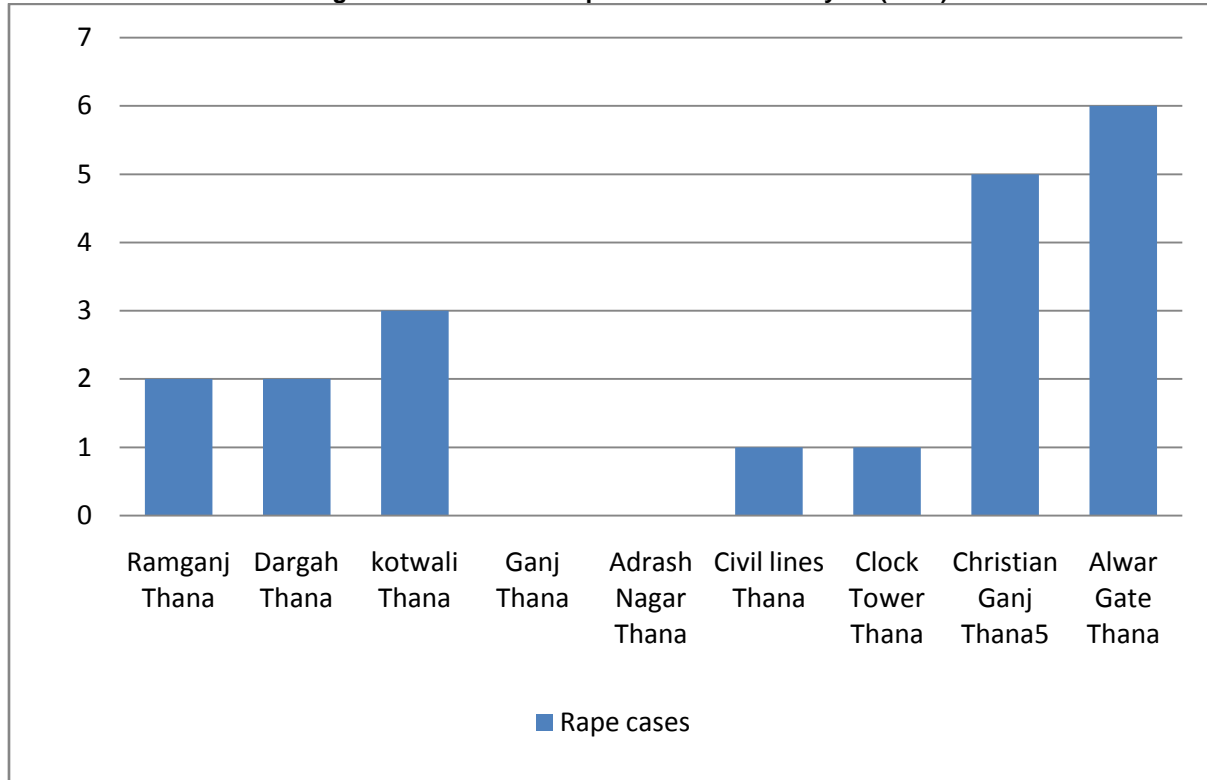


Figure 2: Thana wise Rape incidences of the year (2011)



After examining the rate of crime in the study region that has been selected, that is, Ajmer, the conclusion was made with the in-depth study of the data collected from the S.P. Office of Crime Branch and all the Nine Police Station of the city. The study was conducted on the major

Aadarshnagar Police Station

After studying about 2011– 2017 map of Aadarshnagar P.S. We found that - Robbery mainly seen in the area of Ricco industrial area. Where mainly the official people visit.

Civil Lines Police Station

After studying about 2011 – 2017 map of Civilines P.S. We found that - Home breaking at Civilines area (Near shastrinagar road).

Clock tower Police Station

After studying about 2011 – 2017 map of Clock tower P.S. We found that - Home breaking night at Janta market. Two wheeler theft at Sant Francis hospital, babu colony, Vimla market, Outside Jain namkin, GCA parking, Apna market and four wheeler are mainly stolen from Sant Francis hospital & babu colony.

Ganj Police Station

After studying about 2011 – 2017 map of Ganj P.S. We found that -Kidnapping are mainly scan 300 meter buffer zone of Ganj P.S. Home breaking mainly near dehaligate & two wheeler theft mainly at Ramprashadghat.

Dargah Police Station

After studying about 2011 – 2017 map of Dargah P.S. We found that – Terrorist choose site for terrorist attack where is crowd because In crowd area one bomb blast may damage many people life that's

why reason in an explosion occurred near a courtyard outside of the Dargah of Khawaja Moinuddin Chishti in Ajmer. Dargah is Sensitive area for terrorist attack so CCTV camera & metel detectors are very important in this particular area. It is observed that, violence crime mainly occurs at Andarkot.

Kotwali Police Station

After studying about 2011–2017 map of Kotwali P.S. We found that - Home breaking night mainly near information centre circle & Ajmer tower. Hospital, four wheeler theft mainly at JIN, medical college & outside swami complex.

Alwargate Police Station

After studying about 2011 – 2017 map of Alwargate P.S. We found that -Kidnapping are mainly scan near Kundan nagar. Some crime cases found at Nagra, Bihariganj, gokulnagar, jadoor , vinaynagar and madarpura.

Christianganj Police Station

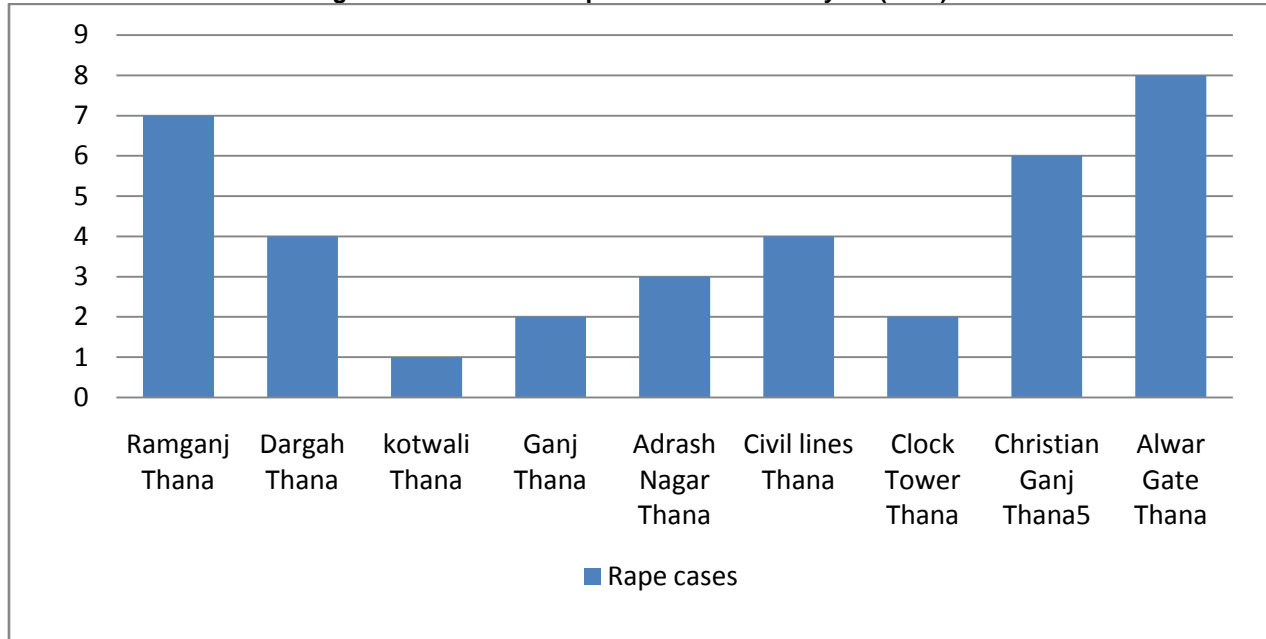
After studying about 2011 – 2017 map of Alwargate P.S. We found that -.Home breaking day at Panchsheel nagar, UIT ,main Christianganj area & Night crimes took place in Main Panchsheel A, B block , RPSC Colony.

Ramganj Police Station

After studying about 2011 – 2017 map of Ramganj P.S. We found that - Rape incidenes are maximum in this area. Home breaking day at Ajaynagar, satguru colony & Night crimes took place in Chandverdai, jhulelal colony & Ajaynagar, Railway hospital, Shiv temple(Ajaynagar) ,HMT parisar and chunginaka. Near OP Ramganj & In dorai at hastivihar colony.

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Figure 3: Thana wise Rape incidences of the year (2017)



As we can see in this graph the maximum rape cases are registered in the Alwar gate Police Station. Because this region is the heart of Ajmer. Which is interconnected and interrelated to each other in various sub-divisions. As compared to other Police Stations the least rape cases are registered in kotwali police station as it's in the center of the city crime rate is less their.

Conclusion

Safe City Concept is a concept which enhances the protection of general public and reduces their risks caused by both, disaster as well as crime in a city. To create safe urban areas those provide better social and economic environments by preparing for both natural and Man-Made disaster. To improve social and better living conditions in cities and empower women. To ensure road and safety and enable free pedestrian flow. Improves healthy and living conditions in the cities. The safe city looks for ways to optimize its infrastructure solutions such as smart grids, building automation, security solutions and traffic control systems.

The area which is densely populated is having maximum percentage of crime against women, in those areas strict government laws should be made to protect women against crime taking regions. To eradicate the high rate of domestic violence in the districts, society should consider the status of men and women equal. Development in the field of education, gender equality, healthy relationship, sexual consent, human rights and equality between women and men should be done to make people aware. Increase in the personal safety of women should be kept in mind so that they are safe at homes and even in their working places and can work in the safe environment. Police should take immediate action to punish the criminal with serious punishments so that women who are been the victims of the happening can have justice against the crime.

Development programmes to access perceptions of public safety and developing safety planning, environmental design and management of public space in order to reduce violence against women. Increase in the criminal justice agencies awareness so as to tackle crime and antisocial behaviour in public spaces and develop partnerships with civil society groups who are engaged in these initiatives.

Education among females should be promoted so that they can be aware of the social evil pertaining in the society. Women should raise their voice against marital and family rapes. Women employment and opportunities should be created, so that, the female dependency on males reduces and hence come to end.. Social mobilization for changing existing cultural practices which are against the rights of the women should be stopped, also efforts should be made to amend the community's views about women rights should be organized to create more awareness. Women police stations should be made efficient regarding protection of female rights. Development of a network effective reporting concerning violence cases should come to existence.

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