

Urban Development and Social Awareness: Evaluating Their Impact on Sexual Violence, Women's Mobility, and Economic Participation in India

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Abstract

Violence against women is a prevalent issue that stands as a barrier towards socio-economic growth. Globally, the UN 2030 Agenda identifies the need and relevance of women's safety and empowerment through better infrastructure, education, and justice. This study attempts to uncover the relationship between urban infrastructure, and reported rates of sexual violence against women. Data sourced from the National Crime Records Bureau of India and the World Bank has been used to find the correlation between government expenditure on education and access to electricity with crime against women. The need for gender-sensitive infrastructural development is reiterated through the negative relation between access to electricity and crime rates. In contrast, a positive correlation between expenditure on education and crime against women indicates the prevalence of other societal issues. Additionally, analysis of primary data of population across demographic variations provides the impact of socio-economic differences on women's safety and its public perception. Overall, the paper uncovers the multifaceted nature of violence against women in India, highlighting the importance of gender-sensitive urban planning and nuanced education policies.

Keywords: Women, Crime, Education, Urbanisation

1. Introduction

Violence against women is a global phenomenon, though its forms and magnitude may vary from region to region. Women in general may suffer physical, sexual, psychological, and economic violence, both inside and outside the boundaries of their household. According to WHO, 35 per cent of women worldwide have experienced either physical and/or sexual intimate partner violence or non-partner sexual violence (WHO, 2013). Such violence is a fundamental violation of women's basic human rights and is a barrier to their full participation in all spheres of life. An abused woman loses her sense of self and is unable to perform independently, she might never be able to get financially independent due to control

over her income, or it might be the case that physical and emotional abuse hinders her daily practices and forces her to confine herself to household chores.

A lot of research has shown that crime against women is the result of prevailing inequalities and power imbalances between men and women in our society. The most commonly mentioned cause of violence against women is patriarchy, defined as a social system in which men are placed above women. Various cultural norms have virtually institutionalized gender bias in our thinking pattern, and violence against women is one of its inhuman manifestations. These beliefs are so deep-rooted that even the victim sometimes does not realize she is being abused. In many cases, crimes go unreported due to the belief that it will ruin the family name and reputation, this further leads to crimes such as honor killing, where women are killed in the name of family reputation. The problem with India is that most crimes against women are not even considered crimes due to social beliefs and culture. As a result, a lot of these crimes go unreported and undocumented. According to a report from the International Center for Research on Women (ICRW) and Instituto Promundo (2010), 65% of Indian men believe women should tolerate violence to keep the family together, and women sometimes deserve to be beaten. Such beliefs increase crimes against women, including domestic violence, sexual assault, harassment, and emotional abuse.

In India, the criminalization of politics in terms of caste, religion, and ethnic identities causes increased crime against women (Karat and Agnihotri, 1993; Karat, 1998). Criminalization of politics fosters an environment where societal hierarchies are manipulated for political gain, say, exploiting caste to gain votes or using violence to maintain power. Women's movements in India have primarily been focused on patriarchy, sexual violence, oppression, domestic subordination, and similar issues through the lens of class and caste. At times, women from lower caste and class become victims of patriarchy and sexual violence, suffering abuses from not only men of their own class but also from men hailing from upper caste and class.

Uttar Pradesh is considered the most unsafe state for women.

In addition, the increasing use of the internet has significantly influenced the distribution of and access to pornography in India. Internet access has grown from 5 million users in 2004 to 40 million users in 2007, continuing to grow at a rate of 17 per cent a year. Moreover, access to pornographic material has increased, with 12 percent of internet websites being related to pornography. Bhuller, et al. (2013) suggest that internet usage is associated with a substantial increase in reported incidences of rape and other sex crimes, plausibly due to increased consumption of pornography. A laboratory experiment shows a positive

relationship between pornography and sexual aggression (Zillman, 1982; Allen, et al., 1995), particularly violent pornography (Donnerstein and Berkowitz, 1981). Morgan (1978) famously stated, "Pornography is the theory; rape is the practice", supporting the view that pornography not only constitutes violence against women but also serves as a primary conduit for such violence (Dworkin, 1981).

There are five main theoretical streams on intimate partners' violence against women: sexism, family violence, dependency theories, exchange theories, and status inconsistency theories. Sexism is fundamentally a 'cultural' approach, while family violence is closer to the 'economic' pole. The other three theories—dependency, exchange, and status inconsistency—include both cultural and economic elements. All five theories emphasize the role of patriarchy in fostering violence against women, though each conceptualizes patriarchy differently.

According to the National Crime Records Bureau (NCRB), the annual crime report for 2022 revealed a staggering 4,45,256 cases of crime against women, translating to approximately 51 FIRs every hour. This marked an increase from 2021's 4,28,278 cases and 2020's 3,71,503 cases. The crime rate was 66.4 per lakh population, with a charge sheeting rate of 75.8 in such cases. Shockingly, the majority of crimes against women were categorized by husband or relative (31.4%), followed by kidnapping and abduction (19.2%), assault with intent to outrage modesty (18.7%), and rape (7.1%).

Globally, WHO estimates that nearly 1 in 3 women face either physical or sexual intimate partner violence or non-partner sexual violence in their lifetime (Violence against Women Prevalence Estimates, 2018). In India, over 16 women out of every 100 thousand suffer from domestic violence. Despite 89,097 cases of crimes against women being registered in 2018, the actual crime rate per lakh population declined from 388.6 in 2017 to 383.5 in 2018.

In terms of global rankings, India is ranked 2nd in international homicide (United Nations Office for Drugs and Crime). It is also ranked 96th in the World's Safest Countries list. According to a report by Thomson Reuters Foundation (2018), India is considered one of the most unsafe places for women due to its high incidences of sexual violence, lack of access to justice in rape cases, child marriage, female foeticide, and human trafficking.

The International Center for Research on Women (ICRW) in multiple centers in India reported that 85% of men admit they had indulged in violent behavior against their wives at least once in the last 12 months. 57% of men admitted to have sexual abuse with their wives. 32% of men admitted to committing violence on their pregnant wives. The men indulged in

violence to establish their power over the weaker sex. Subtle and insidious forms of violence include repeated humiliation, insults, forced isolation, limitations on social mobility, the constant threat of violence and injury, and denial of economic resources.

In the 1996 survey of 6902 men in the state of Uttar Pradesh, up to 45% of married men acknowledged physically abusing their wives. The National Health Survey conducted under the stewardship of the Ministry of Health and Family Welfare, reported that >1/3 of women (34%) between the ages of 15-49 years have experienced spousal physical violence. The adverse health consequences that women experience due to violence are wide-ranging with physical, reproductive and sexual and mental health outcomes.

Studies from India reported violence in 19-76% of women (75%-76% in lower caste women; 42-48% in Uttar Pradesh and 36-38% in Tamil Nadu; and 19% in an urban slum community of childless women.) In Western India, 15.7% pregnancy-related deaths in the community series and 12.9% in the hospital series were associated with domestic violence. In Uttar Pradesh, 30% men reported beating wives. 22% of women of childbearing age from a potter community were physically assaulted. 34% of those physically assaulted required medical attention.

2. Literature review

Crime against women persists to be an ongoing problem. The interconnectedness of policy implementation to women related crimes has been reiterated by multiple studies. There has been a focus on three key areas namely the infrastructural advancements, legislation and socioeconomic factors.

Infrastructural Advancements

Srinivasan, Raji (2015) concludes that the absence of basic sanitation facilities (such as toilet facilities) can exacerbate vulnerabilities to violence in urban areas, particularly for economically disadvantaged women. This parallels research conducted in other countries as well. For example, Winter and Barchi(2015) find evidence of an association between lack of access to sanitation and VAW(Violence against women)

Gupta et al. (2022) find that higher levels of development, indicated by the Human Development Index (HDI) and increased female labor force participation, appear to reduce crimes against women. This suggests that as women gain more economic opportunities and overall development improves, instances of violence or crimes against women decrease.

The opposite relation, that women's safety concerns lead to lesser economic and infrastructural development and growth has been discussed by Fraser et al. (2017). A detailed table presented shows the minimum requirements of infrastructural facilities and how to use them for empowerment and transformation.

McIlwaine (2013) further states the paradoxical effect of urbanization on the female population. Apart from the social taboos and infrastructural lags, it also talks about urban poverty and stress induced violence as a potential factor. It was found by Graystone et al. (2022) that women bicyclists continued to be concerned about their safety even when safety against collisions were taken care of through infrastructural developments. Mohun et al. (2016) mentions the gaps in the current infrastructure which gives rise to the prevalent gender inequality and scope for crime against women. Thus, it proposes for a more inclusive infrastructural growth.

Legislation

The implementation of WPS (Women's Police Station) led to a 29 percent increase in the reporting of (Gender based violence) GBV cases to the police, driven by an increase in reporting of domestic violence cases and this is an increase in reporting rather than in incidence as noted by Amaral, Bhalotra, and Prakash(2021).

However, Sikri, Thakur, Tadele, and Cowen (2021) highlight that while women's police stations (WPSs) have successfully increased reporting rates, India's criminal justice system still falls short in significantly improving conditions for women. The existing backlog in policing and court systems undermines the progress made by WPSs, as many reported crimes remain uninvestigated or unresolved in a timely manner. Additionally, WPSs do not effectively reach a majority of women in need, facing challenges that range from geographic barriers and operational inefficiencies to deeper issues like entrenched gender norms and intersecting social dynamics, including class, caste, and religion.

Amaral (2014) observed that acts of violence within marriage went significantly down with improved property rights for women in India. The inheritance law led to better negotiations in the marriage market, more police reports of violence within marriages and lesser consumption of alcohol by partners.

Furthermore, the existence of gender based justice systems have proven to be effective for women's issues. Kethineni et al. (2016) discusses the success of Nari Adalats and Mahila Samakhya in investigating and disposing of a wide range of domestic violence cases in India.

(Socioeconomic Factors)

High rates of criminal violence are the price of racial and socioeconomic inequalities as noted by Blau, Blau(1982). Benson, M. L., Fox, G. L., DeMaris, A., & van Wyk, J. (2003) found that two measures of economic distress have significant effects on intimate violence. More employment instability and greater subjective financial strain increase its likelihood.

Ackerson and Subramanian (2008) observed that increased educational opportunities could significantly decrease intimate partner violence. This was concluded on the basis of lifetime and recent IPV (intimate partner violence) reports by women of different educational backgrounds. A positive relation was found between the higher educational levels and chances of reporting.

Ribeiro et al. (2017) focuses more on violence against pregnant women. It is observed that along with socioeconomic status, social support plays a crucial role in reducing crime against women. Social support, witnessing father beating mother, childhood physical punishment, alcohol abuse, along with socioeconomic status are the variables identified by Jeyaseelan et al. (2007).

Family relationships also emerged to be an important variable as observed by Lauritsen and Schaum (2004). Young and single women with children faced a greater risk of violence than women with stronger family relations. Gracia and Herrero (2007) highlights the need to decrease mistrust within the community and improve the perception of the neighborhood and its positive correlation with higher chance of reporting violence.

Apart from the aforementioned variables Gallo-Rivera et al. (2024) also highlights the personal and situational conditions leading to intimate partner violence, such as the immigrant status. Uthman et al. (2009) notes that education helped form positive sex related ideas and interactions. The lack of education led to women justify intimate partner

violence as they lacked the means to differentiate between a positive and negative sex interaction.

The aforementioned studies align with the justification that crime against women arise due to lags in infrastructural developments, legislative loopholes and socioeconomic factors.

3. Research Methodology

To address our research question, we conducted a regression analysis using a dataset spanning from 1996 to 2011. Regression analysis is a statistical technique used to examine the relationship between one dependent variable and one or more independent variables. It helps in understanding how the dependent variable changes when any one of the independent variables varies, while the other independent variables are held constant. The main goal of regression analysis is to model this relationship mathematically, allowing researchers to make predictions, identify trends, and infer causal relationships. By estimating the coefficients of the regression model, we can assess the strength and direction of the relationships between variables, enabling an evaluation of the effects of specific predictors. This method is particularly useful for isolating the influence of each factor while controlling for other variables, thus providing a clearer understanding of complex interdependencies within the dataset.

3.1 Research process

Step 1 - selection of indicators

The study selected Government Expenditure on Education and Access to Electricity as key variables to analyse their impact on crime rates against women. Government Expenditure on Education was chosen as a proxy for access to education, aiming to examine whether increased funding leads to greater awareness and social change, thereby reducing crimes against women. Access to Electricity was used to measure infrastructural development, considering its role in improving safety, economic opportunities, and overall living conditions. The study investigates whether these factors contribute to altering patterns of violence against women in India.

Step 2 - selection of database

For data collection we relied on international data collection agencies and National Crime Records Bureau of India Statistics. The data has been collected from World Bank open data sets and Yearly publishings of NCRB in India. The data is backed by international agencies and the Ministry of Home Affairs in India.

Step 3 - scaling the data

For coherent data analysis as well as results we had to scale the data. The data on government expenditure on education was originally reported in a large numerical format (e.g., ₹282,796,900,000.00). To simplify its presentation and enhance readability, it was scaled down by dividing it by 1 billion. This adjustment allows the expenditure to be expressed in billions of rupees (e.g., ₹282.7969 billion), making it easier to interpret and compare across datasets without altering the underlying values. Similarly, the data on the number of households with access to electricity was initially reported in a large numerical format (e.g., 471,512,810.2). To simplify its presentation, it was scaled down by dividing it by 1 million. This adjustment allows the figure to be expressed in millions of households (e.g., 471.5128102 million).

The data on the number of reported crimes against women was initially available in lakhs of cases (e.g., 16.29936 lakh cases). To simplify its presentation and enhance readability, it was converted to a smaller unit by expressing it in millions (e.g., 162.9936 million cases).

4. Data Analysis and Results

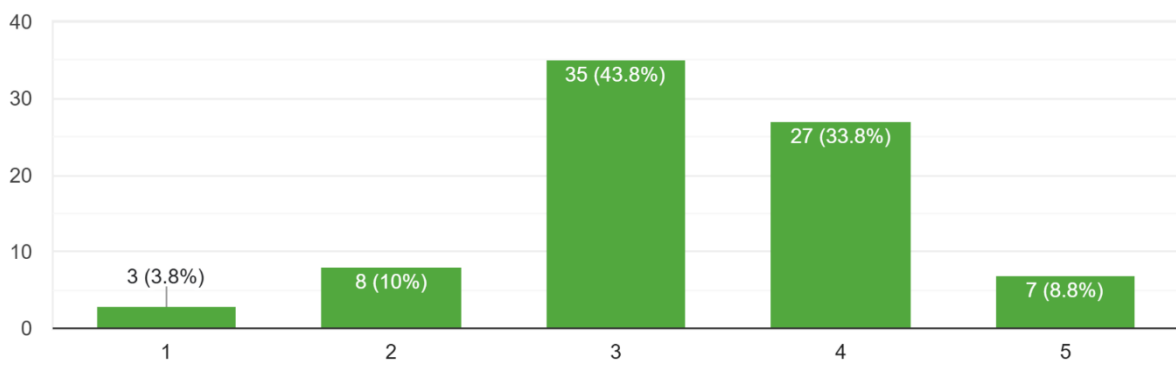
4.1 Primary Data Analysis

To assess the current state of women's safety, a primary survey was conducted focusing on key variables such as public transport, street lighting, and the education system, and their correlation with women's safety. A google form containing related questions was circulated across people from different age groups and regional backgrounds. The survey received responses from 71.3% women and 77.5% urban residents. Notably, 78.8% of the respondents were undergraduate students from across the country, offering a glimpse into the perspectives and attitudes of the younger generation. The survey included the following questions, along with an analysis of the responses:

Question 1. *How would you rate the street lighting in your area?*

Among the rural female population, 50% rated the street lighting as average, while the remaining 50% regarded it as poor or very poor. In suburban areas, 50% rated it above average, 41% as average, and 9% as very poor. Urban areas fared better, with 88.7% rating it as average or above average and 11.3% as poor. This highlights a stark disparity in street lighting infrastructure, with rural areas in urgent need of upgrades to improve safety and quality of life, especially for women.

How would you rate the street lighting in your area? 1 - Very poor 2 - Poor 3 - Average 4 - Good 5 - Excellent
80 responses

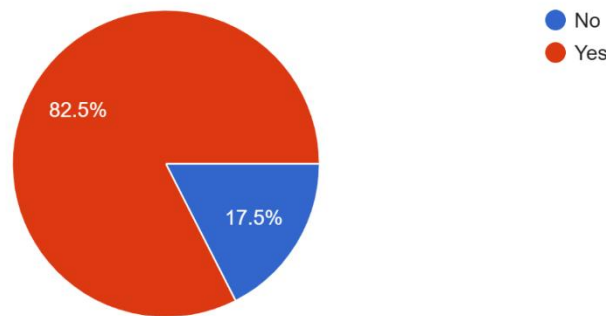


Question 2. *Does your area have a public transport facility ?*

Only 50% of the rural population reported access to public transport, compared to 75% in suburban and 87% in urban areas. Given how extensively urban and suburban areas are served by public transportation, it is imperative that rural areas' increased reliance on these services be addressed by prioritizing the expansion of public transportation networks.

Does your area have public transport facility ?

80 responses

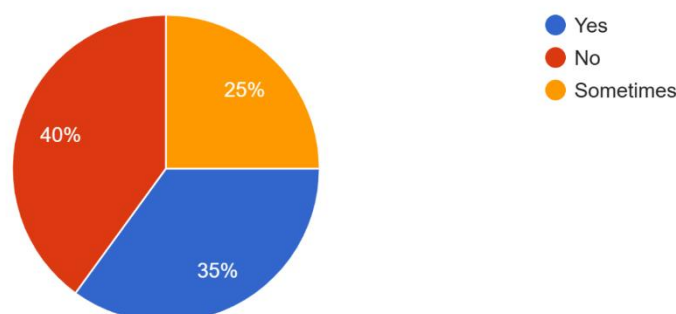


Question 3 *Do you feel safe using public transport in your area after dark?*

80% of the female respondents do not feel safe or show a sense of reluctance in using public transport after dark. 70% of these women live in urban or suburban areas and have access to public transport. Women respondents who reside in rural areas are completely against the notion of using public transport after dark and convey that they feel unsafe. On the other hand only 30% of the male respondents feel unsafe in using public transportation after dark. This gives a clear yet grim image of the effectiveness of public transport in urban, suburban and rural areas.

Do you feel safe using public transport in your area after dark?

80 responses



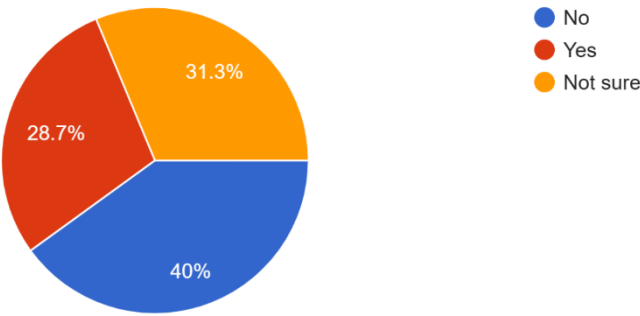
Question 4 *Have you noticed any visible increase in safety measures (e.g., police patrols, emergency helplines) in your area in the past few years?*

40% of the respondents have noticed no visible increase in safety measures in their area, out of which 90% live in urban or suburban areas. 50% of the rural population conveys no visible

increase in safety measures and the rest 50% is unsure. This reflects a need for further investments in citizen safety in India.

Have you noticed any visible increase in safety measures (e.g., police patrols, emergency helplines) in your area in the past few years?

80 responses

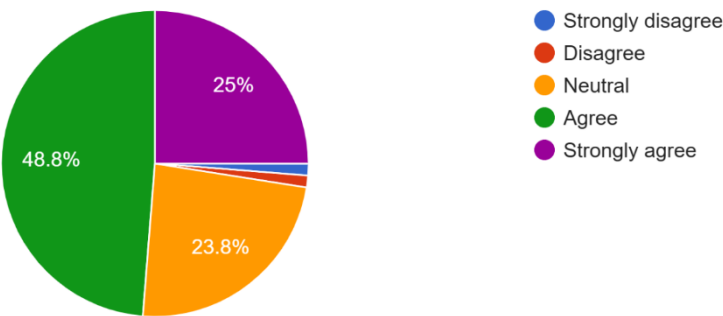


Question 5 *Do you believe that better urban infrastructure (e.g., streetlights, safe transport, CCTV) can reduce crimes against women?*

Almost 50% of the respondents agree while 25% strongly agree that better urban infrastructure can reduce crimes against women. Only 2.5% disagreed of which 50% were males. Thus, it can be concluded that women have stronger views about infrastructure and positively link it to their safety.

Do you believe that better urban infrastructure (e.g., streetlights, safe transport, CCTV) can reduce crimes against women?

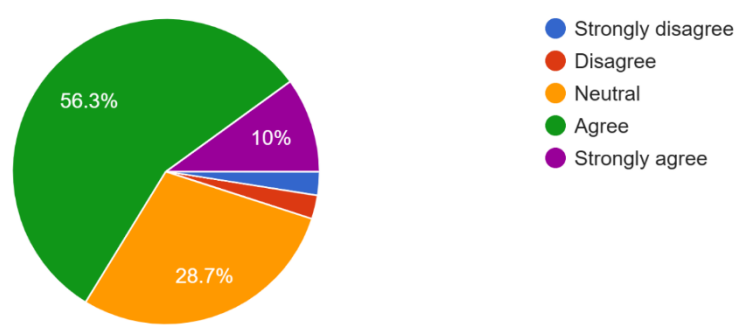
80 responses



Question 6 *Do you think public awareness campaigns influence people's behavior toward gender-based violence?*

A majority of almost 57% believes in the influence of public awareness campaigns towards gender based violence. Only 5% of the respondents showcased their disagreement with the statement. While the majority agrees, a significant 29% has a neutral opinion. Interestingly, almost 70% of them are females. It can be inferred that while public awareness campaigns are believed to influence behavior, most women don't find it reliable.

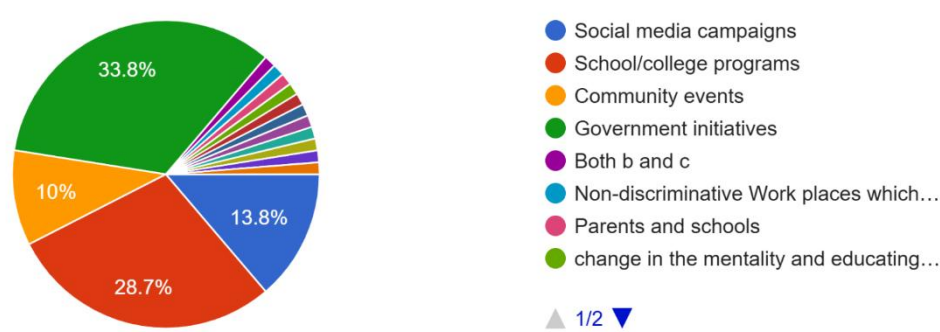
Do you think public awareness campaigns influence people's behavior toward gender-based violence?
80 responses



Question 7 *In your opinion, what is the most effective way to raise awareness about crimes against women?*

Most respondents(38%) believed that government initiatives were the most effective in raising awareness about crimes against women. A significant number also felt that schools and colleges have the potential to contribute to this awareness. Additionally, social media, community events, and stricter laws were also mentioned as important factors.

In your opinion, what is the most effective way to raise awareness about crimes against women?
80 responses

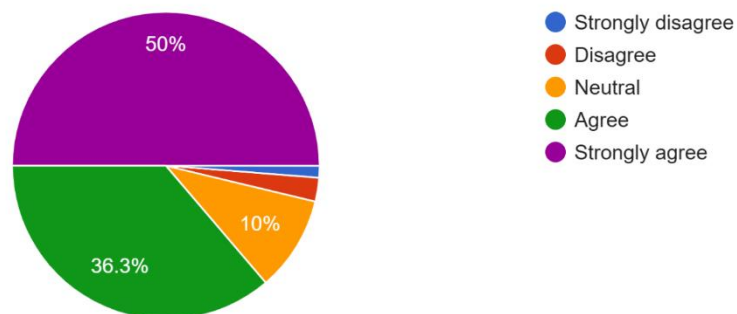


Question 8 *Do you believe that education contributes to changing societal attitudes toward women?*

Half of the respondents believed that education plays a significant role in changing societal attitudes toward women, indicating a strong consensus on its positive impact. A small minority, however, expressed skepticism on the ability of education alone to shift deeply ingrained societal attitudes toward women.

Do you believe that education contributes to changing societal attitudes toward women?

80 responses

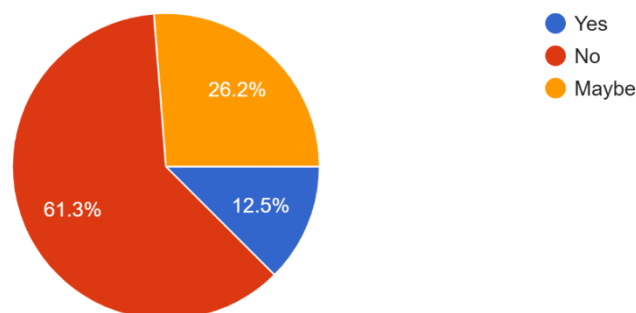


Question 9 *Do you think the current education system adequately addresses issues related to gender-based violence?*

A large number of respondents (61.3%) believe that the current education system does not adequately address issues related to gender-based violence. This highlights a significant gap in how these crucial issues are integrated into syllabi or discussed within schools.

Do you think the current education system adequately addresses issues related to gender-based violence?

80 responses

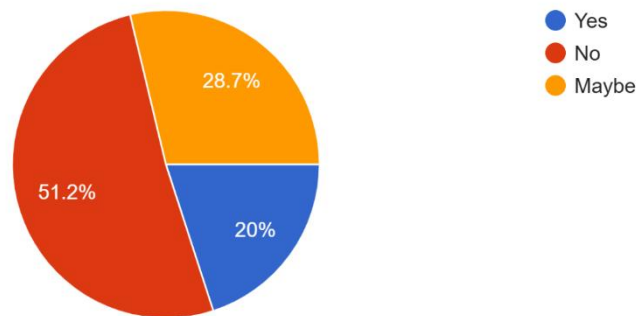


Question 10 *Do you feel that crimes against women are reducing in your locality?*

A significant 64.9% of females believe that crimes against women are not reducing, with 86.4% of them residing in semi-urban or urban areas. In contrast, only 17.4% of males feel the same, all of whom are from urban areas. This highlights a concerning gap in awareness among men regarding crimes against women, emphasizing the need for greater sensitization and awareness programs, especially targeted at urban male populations.

Do you feel that crimes against women are reducing in your locality?

80 responses



4.2 Secondary Data Analysis

4.2.1 Description of variables

Explanatory variables : We used two explanatory variables in this paper. The first variable, 'Government Expenditure on Education' is used as a proxy to analyse access to education. The goal was to establish a link between the central government's funding for education and crime rates against women. Moreover, we aimed to explore whether this relationship was negatively correlated and understand if increased access to education and social awareness could help reduce crime rates against women.

The second variable 'Access to Electricity' was used to analyse infrastructural development. We wanted to analyse the effects or benefits of increasing access to infrastructure on crimes against women. Violence against women in India is often structural and deeply embedded in society. We sought to analyze whether greater access to education and infrastructural development could change patterns of violence.

Dependent variable: The dependent variable in our analysis is 'Crime rate against women', to assess the frequency of crime incidents against women - the crime rates are an

accumulation of various crimes inflicted upon women such as kidnapping, rape, murder, etc. The motive was to analyse the relationship over a considerable period of time, and draw inferences from the results.

4.2.2 Analysis

The multiple linear regression model was specified with 'Crime rate against women' as the dependent variable and 'Expenditure on education,' and 'Access to electricity' as independent variables. The model is fitted using the Ordinary Least Squares (OLS) method, results of which are shown in Table 1.

Table1 : Results of Regression Analysis

	Coefficients	Standard Error	t Stat	P-value
Expenditure on education	0.042887159	0.006885008	6.229064111	0.00003073
Access to electricity	-0.061131603	0.023103869	-2.645946525	0.020166647

This implies that our results can be written mathematically as:

Crime rate against women = 182.347 + 0.0428(expenditure on education) - 0.0611(access to electricity)

The analysis indicates a negative relationship between access to electricity and the crime rate against women, suggesting that increased household access to electricity is associated with a reduction in crimes against women. According to the regression analysis, a 1% increase in the number of households with electricity leads to a 6.1% decrease in the crime rate against women, while holding education expenditure constant. The P-value of 0.02 (less

than 0.05) confirms the statistical significance of this variable's impact on the dependent variable.

The analysis reveals a positive relationship between expenditure on education and the crime rate against women, indicating that higher education expenditure is associated with an increase in crimes against women. Specifically, a 1% rise in education expenditure corresponds to a 4.3% increase in the crime rate against women, while holding access to electricity constant. The P-value of 0.00003 highlights the statistical significance of this relationship.

This finding challenges the commonly held belief that educated individuals are less likely to contribute to societal issues, particularly those affecting women. However, several factors might explain this counterintuitive result:

- Governments may report inflated expenditure figures.
- A significant portion of the allocated budget may not reach its intended beneficiaries due to corruption.
- The quality of education cannot solely be measured by expenditure; it is also influenced by family dynamics, societal norms, and the broader environment in which students grow up.

Moreover, it is crucial to highlight the methodological limitations of regression analysis that may contribute to such counterintuitive results. Correlation does not imply causation; while education expenditure and crime rates against women appear to be related, this does not establish a direct causal link. Unobserved variables, such as socio-cultural factors, law enforcement efficiency, and economic conditions, may be influencing both education expenditure and crime rates. Additionally, omitted variable bias may arise if key explanatory factors are not included in the regression model. Measurement errors in crime data and education expenditure figures can further distort the results, leading to misleading inferences. Furthermore, multicollinearity between explanatory variables may undermine the robustness of the findings. If education expenditure is highly correlated with other socio-economic indicators, such as urbanization and income levels, it becomes challenging to isolate its independent effect on crime rates. Model specification errors, including incorrect functional forms or inadequate controls, may also contribute to misleading conclusions.

The regression statistics for the analysis are provided in Table 2 and can be interpreted as follows:

Table 2 : Regression Statistics

Multiple R	0.973303723
R Square	0.947320136
Adjusted R Square	0.939215542
Standard Error	2.981149838

1. Multiple R (0.9733): This is the correlation coefficient, indicating a strong positive linear relationship between the independent and dependent variables. A value close to 1 suggests a very high degree of association.
2. R Square (0.9473): This is the coefficient of determination, indicating that approximately 94.73% of the variation in the dependent variable (crime rate against women) can be explained by the independent variables (access to electricity and expenditure on education) in the model. This signifies a strong model fit.
3. Adjusted R Square (0.9392): This value adjusts the R Square for the number of predictors in the model and the sample size. It shows that 93.92% of the variance in the dependent variable is explained by the model after accounting for potential overfitting due to additional predictors.
4. Standard Error (2.9811): This is the standard deviation of the regression's residuals, representing the average distance that the observed values fall from the regression line. A lower value indicates a better fit of the model.

Overall, the regression model demonstrates a strong fit, as evidenced by the high R Square and Adjusted R Square values. However, the small sample size may limit the generalizability of the findings and weaken our model.

5. Conclusion

Violence against women is a major obstacle to achieving the United Nations Sustainable Development Goals for 2030 in India. The implications range from negative impacts on women's physical, mental, sexual, and reproductive health to significant economic costs in terms of expenditures on service provision, lost income for women and their families, or decreased productivity.

Using the data from National Crime Records Bureau of India and The World Bank we find correlational evidence that a negative relationship between access to electricity and the crime rate against women, suggesting that increased household access to electricity is associated with a reduction in crimes against women. We also find that there is a positive relationship between expenditure on education and the crime rate against women, indicating that higher education expenditure is associated with an increase in crimes against women, contradicting the expected negative relationship between the two. This discrepancy in real-time data suggests the need for stricter policies and more effective utilization of resources to address the issue.

The primary research analysis revealed that a significant 64.9% of females feel that crimes against women are not decreasing, with 86.4% of them living in semi-urban or urban areas. Additionally, 75% of respondents believe that improved urban infrastructure could help reduce crimes against women. Half of the participants also agreed that education plays a crucial role in changing societal attitudes toward women, highlighting a strong consensus on its positive impact. These findings generate policy implications for various stakeholders including NGOs, government, state, and local officials, which if implemented, will improve the well-being of millions of Indian women.

6. Future and Limitations

Our study uses current data from government reports to examine the relationship between various factors and crimes against women. However, it is not straightforward to accurately determine crime rates and incidents for women's safety. Official government statistics may contain inherent biases or inconsistencies, as they depend heavily on the accuracy of reporting and data collection methods, which may differ significantly across regions and agencies. Furthermore, due to social stigma or fear, several crimes against women are underreported.

Our survey is representative of diverse age groups, and also examines the opinions of men and women with regard to violence against women. However, due to feasibility constraints, most of our respondents are residents of India and the sample size is relatively small(80). In particular, if education, street lighting, and public transport are among the socio-economic factors and the infrastructure elements (which may indirectly influence the perception of women's security) then these socio-economic factors and the infrastructure elements are also intertwined with each other and sometimes obscure the independent effects of these factors on the incidence of offenses.

There are also many other variables that contribute to crime rates, including the effectiveness of legal systems and law enforcement in protecting women. Nevertheless, due to the scale and the resources of our work some aspects couldn't be thoroughly analysed. This constraint provides an avenue for scientific research to explore the effects of the above and other factors on violence committed against women.

A striking result of our secondary data analysis is that an increase in educational expenditure has not been followed by decreased rates of crime. This warrants policy measures to ensure optimal use of educational resources and, at the least, reform of the education system into a more effective system. On the other hand, work on regional differences between rural and urban regions revealed that geographic and socio-economic determinants had a significant impact on the development of opinions on women safety among respondents, which could have been missed in our study.

Within this, there is a critical area of investigation developing a policy efficacy metric with a view to understanding whether interventions in the fields of education, police, and other infrastructure-based work are achieving any desired consequence.

References

Ahuja, R. C., Bangdiwala, S., Bhambal, S. S., Jain, D., Jeyaseelan, L., Kumar, S., Lakshman, M., Mitra, M. K., Nair, M. K. C., Pillai, R., Pandey, R. M., Peedicayal, A., Sadowski, L., Suresh, S., Upadhyaya, A. K., International Clinical Epidemiologists Network (INCLEN), Burton, B., Duvvury, N., Varia, N., & Escobar, M. (2000). A summary report of a Multi-Site household survey. In G. R. Gupta & C. Feldman-Jacobs (Eds.), *Domestic Violence in India*. <https://www.icrw.org/wp-content/uploads/2016/10/Domestic-Violence-in-India-3-A-Summary-Report-of-a-Multi-Site-Household-Survey.pdf>

Allen, M., Emmers, T., Gebhardt, L., & Giery, M. A. (1995). Exposure to pornography and acceptance of rape myths. *Journal of Communication*, 45(1), 5–26.
<https://doi.org/10.1111/j.1460-2466.1995.tb00711.x>

Amaral, Sofia and Bhalotra, Sonia and Prakash, Nishith, Gender, Crime and Punishment: Evidence from Women Police Stations in India (2021). CESifo Working Paper No. 9002, Available at SSRN: <https://ssrn.com/abstract=3827615> or <http://dx.doi.org/10.2139/ssrn.3827615>

Amaral, Sofia, Do Improved Property Rights Decrease Violence Against Women in India? (July 1, 2017). Available at SSRN: <https://ssrn.com/abstract=2504579> or <http://dx.doi.org/10.2139/ssrn.2504579>

Analysis of growth and identifications of the determinants ... Available at: <https://vc.bridgew.edu/cgi/viewcontent.cgi?article=2373&context=jiws>

Benson, M. L., Fox, G. L., DeMaris, A., & van Wyk, J. (2003). Neighborhood Disadvantage, Individual Economic Distress and Violence Against Women in Intimate Relationships. *Journal of Quantitative Criminology*, 19(3), 207–235.
<https://doi.org/10.1023/A:1024930208331>

Bhuller, M., Havnes, T., Leuven, E., & Mogstad, M. (2013). Broadband Internet: an information superhighway to sex crime? *The Review of Economic Studies*, 80(4), 1237–1266. <https://doi.org/10.1093/restud/rdto13>

Blau, J. R., & Blau, P. M. (1982). The cost of inequality: metropolitan structure and violent crime. *American Sociological Review*, 47(1), 114. <https://doi.org/10.2307/2095046>

Brecher, B. (2015). Andrea Dworkin's Pornography: Men Possessing Women — A Reassessment. In *Palgrave Macmillan UK eBooks* (pp. 145–161).
https://doi.org/10.1057/9781137015129_9

Donnerstein, E. (1984). Pornography: Its Effect on Violence against Women**The research by the present author which is presented in this chapter was supported in part by grants MH 07788-02 from NIMH, and BNS 8216772 from the National Science Foundation. In *Elsevier eBooks* (pp. 53–81). <https://doi.org/10.1016/b978-0-12-466280-3.50009-9>

Fraser, E., Viswanath, K. and MacLean, L. (2017) *Violence against women and girls: Infrastructure and cities briefing note*, GOV.UK. Available at: <https://www.gov.uk/government/publications/violence-against-women-and-girls-infrastructure-and-cities-briefing-note>

Gallo-Rivera, M., Mañas-Alcón, E., & Garrido-Yserte, R. (2024). Space matters. The influence of situational and sociocultural factors on intimate partner violence against women (IPVAW). *Cities*, 153, 105288. <https://doi.org/10.1016/j.cities.2024.105288>

Gracia, Enrique & Herrero, Juan. (2006). Public Attitudes Toward Reporting Partner Violence Against Women and Reporting Behavior. *Journal of Marriage and Family*. 68. 759-768. 10.1111/j.1741-3737.2006.00288.x.

Graystone, M., Mitra, R., & Hess, P. M. (2022). Gendered perceptions of cycling safety and on-street bicycle infrastructure: Bridging the gap. *Transportation Research Part D Transport and Environment*, 105, 103237. <https://doi.org/10.1016/j.trd.2022.103237>

Gupta, S., Sahoo, P. K., & Paltasingh, K. R. (2022). Does development deter crime against women? Panel evidence from India. *Journal of Business and Socio-economic Development*, 2(1), 19–33. <https://doi.org/10.1108/jbsed-11-2021-0146>

India most dangerous country for women with sexual violence rife - global poll | Reuters. Available at: <https://www.reuters.com/article/world/india-most-dangerous-country-for-women-with-sexual-violence-rife-global-poll-idUSKBN1JM075>

India most dangerous country for women with sexual violence rife - global poll | Reuters. Available at: <https://www.reuters.com/article/world/india-most-dangerous-country-for-women-with-sexual-violence-rife-global-poll-idUSKBN1JM075/>

International Men and Gender Equality Survey (IMAGES) survey questionnaires. (2011). <https://www.icrw.org/wp-content/uploads/2016/10/International-Men-and-Gender-Equality-Survey-IMAGES.pdf>

Jeyaseelan, L., Kumar, S., Neelakantan, N., Peedicayil, A., Pillai, R., & Duvvury, N. (2007). Physical spousal violence against women in India: some risk factors. *Journal of biosocial science*, 39(5), 657–670. <https://doi.org/10.1017/S0021932007001836>

Karat, B., & Agnihotri, I. (1993). Violence against Women. Sixth National Conference on Women's Studies, Mysore.

Kethineni, S., Srinivasan, M., & Kakar, S. (2016). Combating Violence against Women in India: Nari Adalats and Gender-Based Justice. *Women & Criminal Justice*, 26(4), 281–300. <https://doi.org/10.1080/08974454.2015.1121850>

Lauritsen, J. L., & Schaum, R. J. (2004). THE SOCIAL ECOLOGY OF VIOLENCE AGAINST WOMEN*. *Criminology*, 42(2), 323–357. <https://doi.org/10.1111/j.1745-9125.2004.tb00522.x>

Leland K. Ackerson, S. V. Subramanian, Domestic Violence and Chronic Malnutrition among Women and Children in India, *American Journal of Epidemiology*, Volume 167, Issue 10, 15 May 2008, Pages 1188–1196, <https://doi.org/10.1093/aje/kwn049>

McIlwaine, C. (2013). Urbanization and gender-based violence: exploring the paradoxes in the global South. *Environment and Urbanization*, 25(1), 65–79. <https://doi.org/10.1177/0956247813477359>

Mohun, R. *et al.* (2016) *Infrastructure: A Game Changer for Women's Economic Empowerment, Social Development Direct*. Available at: <https://sddirect.org.uk/sites/default/files/2022-12/infrastructure-womens-economic-empowerment-scoping-report.pdf>

National Crime Records Bureau (NCRB) 2022 report. Available at: <https://www.ncrb.gov.in/uploads/nationalcrimerecordsbureau/custom/1701607577CrimeinIndia2022Book1.pdf>

National Crime Records Bureau (NCRB) 2022 report. Available at: <https://www.ncrb.gov.in/uploads/nationalcrimerecordsbureau/custom/1701607577CrimeinIndia2022Book1.pdf>

NCRB STAS data from https://images.assettype.com/barandbench/2023-12/dcoba053-aifo-4e6a-a5f8-e7668ddd2249/NCRB_STATS.pdf

Prevalence Estimates, 2018. <https://www.who.int/publications/i/item/9789240022256>

Ribeiro, M. R. C., Da Silva, A. a. M., De Britto E Alves, M. T. S. S., Batista, R. F. L., Ribeiro, C. C. C., Schraiber, L. B., Bettiol, H., & Barbieri, M. A. (2017). Effects of Socioeconomic Status and Social Support on Violence against Pregnant Women: A Structural Equation Modeling Analysis. *PLoS ONE*, 12(1), e0170469. <https://doi.org/10.1371/journal.pone.0170469>

Sexual and Reproductive Health and Research (SRH). (2021, March 9). *Violence Against Women*

Sikri, Thakur, Tadele, and Cowen (2021) *Why Women's Police Stations in India Fail to Mitigate Violence Against Women, Reach Alliance*. Available at:

https://static1.squarespace.com/static/53e7dd4fe4bofb1fc62c318a/t/5a4a6df271c10bd7b34daded/1514827259343/Sample_SS1.pdf (Accessed: 26 January 2025).

Srinivasan, R. (2015). Lack of toilets and violence against Indian women: empirical evidence and policy implications. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2612052>

Uthman, O.A., Lawoko, S. & Moradi, T. Factors associated with attitudes towards intimate partner violence against women: a comparative analysis of 17 sub-Saharan countries. *BMC Int Health Hum Rights* 9, 14 (2009). <https://doi.org/10.1186/1472-698X-9-14>

Violence against women. Available at: https://iris.who.int/bitstream/handle/10665/112325/WHO_RHR_14.11_eng.pdf

Winter, S. C., & Barchi, F. (2015). Access to sanitation and violence against women: evidence from Demographic Health Survey (DHS) data in Kenya. *International Journal of Environmental Health Research*, 26(3), 291–305. <https://doi.org/10.1080/09603123.2015.1111309>

World bank data from <https://data.worldbank.org/indicator/SE.XPD.TOTL.GB.ZS?locations=IN>