Analysis of deaths due to Gender - based violence:

An autopsy - based cross-sectional study from Mumbai

March, 2023

Bloomberg Philanthropies

DATA FOR HEALTH INITIATIVE

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March, 2023

Seth G S Medical College & King Edward Memorial Hospital
Acharya Donde Marg, Parel, Mumbai. India

CONTENT

PREFACE

Throughout the world, violence against women is a grave and pervasive issue that requires urgent attention. Gender-based violence has devastating consequences for individuals, families, and communities and death is the most dreadful form of gender-based violence.

As the Dean of this medical college and hospital, I am honored to present this study report on the analysis of female deaths due to gender-based violence (GBV). This report highlights the analysis of deaths among women (including non-binary gender) due to gender-based violence. It examines the proportion of gender-based violence deaths in women reported in the post-mortem center and seeks to understand select social factors and perpetrator characteristics associated with gender-based violence.

The report presents a set of recommendations based on the key findings that would guide and inform actions at the institutional and policy level. This is aimed for researchers, professionals, policymakers, and students interested in understanding the scale and patterns of injuries resulting from gender-based violence.

The report also sheds light on the underlying social, economic, and cultural factors that perpetuate GBV, and emphasizes the need for a multi-faceted approach to addressing this issue. It emphasizes the importance of a collaborative effort among various stakeholders, including healthcare providers, law enforcement agencies, civil society organizations, and government bodies, to prevent GBV and support victims.

I am confident that this study report will serve as a valuable resource to inform policy and practice, and to inspire effective action to reduce the prevalence of gender-based violence and its devastating impacts. We hope this report will serve as a valuable and powerful tool for policymakers, practitioners, and advocates to use in their efforts to end gender-based violence. This study is the result of a collective effort by a team of technical advisor, researchers, and healthcare professionals, who have worked tirelessly to collect and analyze data on female deaths due to GBV. Their commitment and passion to bring this issue to light is commendable.

Sulawal-

Dr Sangeeta Rawat
Dean
G.S. Medical College & K.E.M Hospital

ACKNOWLEDGEMENT

This report is an output of the work jointly done by the Department of forensic medicine and toxicology, Seth G.S Medical College and KEM hospital, Parel, Mumbai, and Vital Strategies, supported by the Bloomberg Philanthropies, Data for Health Initiative.

We would like to express our thankfulness and sincere appreciation to our principal investigator/guide, Dr. Harish M Pathak, for his invaluable assistance in developing the report.

We wish to extend our sincere gratitude to our technical advisors, Dr. Nidhi Chaudhary and Dr. Arpita Paul from Vital Strategies, India. We appreciate their commitment to our project and their dedication to tackling the issue of gender-based violence. The analysis has been possible through the continued technical and financial support provided by the Data Impact Program, Vital Strategies under the Data for Health Initiative of Bloomberg Philanthropies.

We are also appreciative to the research team and faculty of the Department of forensic medicine and toxicology, Seth G.S Medical College and KEM Hospital, who supported the study.

We are thankful for their dedication and commitment to helping us achieve our goals of translating data into evidence.

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ABBREVIATIONS

Abbreviations	Definition
CDSCO	Central Drugs Standard Control Organization
FIR	First Information Report
GBV	Gender Based Violence
GSMC	Gordhandas Sunderdas Medical College
ICH-GCP	International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use – Good Clinical Practice
ICMR	Indian Council of Medical Research
IPC	Indian Penal Code
IPV	Intimate Partner Violence
KEM	King Edward Memorial
NCRB	National Crime Records Bureau
NFHS-5	National Family Health Survey
No.	Number
TBSA	Total Burn Surface Area
TWG	Technical Working Group
UN	United Nations
UNODC	United Nations Office on Drugs and Crime
VAW	Violence Against Women
w.r.t	With Respect To
WCD	Women and Child Development
WHO	World Health Organization

EXECUTIVE SUMMARY

Worldwide, violence against women is an all-pervasive public health concern that requires urgent attention. Gender-based violence has devastating consequences for individuals, families, and communities. Death is, by far, the most extreme outcome of gender-based violence. Most instances of violence against women are caused by those that are close to them. Globally, as many as 38 percent of all murders of women are committed by intimate partners.[1] National-level data on crimes, available through the National Crime Record Bureau (NCRB), indicate that about one-third of the crimes against women in 2021 in India was registered under cruelty by husband or his relatives. (*Crime in India 2021, National Crime Records Bureau, Ministry of Home Affairs*).[2] The National Family Health Survey (NFHS-5) conducted in 2019-2021 reveals that about 29 percent of ever-married women in the age group of 18-49 years in the country have experienced spousal violence.

The National Commission for Women (NCW) in India received nearly 31,000 complaints of crimes against women in 2022. The recent gruesome homicide of a young woman in the national capital by her partner draws attention to the violence perpetrated by an intimate partner.[3] On the one hand, the national statistics related to gender-based violence are disquieting; on the other, the statistics from Mumbai regarding crime against women are just as appalling. According to the NCRB report (Crime in India 2021, National Crime Records Bureau, Ministry of Home Affairs), the city recorded a 65.1 per lakh population crime rate against women, and about 36 cases of abetment to suicide of women, 12 dowry deaths, and four homicides with rape in 2021.[2]

With this as the backdrop, the department of forensic medicine and toxicology, in collaboration with Bloomberg Philanthropies' Data for Health initiative, undertook a study to understand the proportion and pattern of deaths due to gender-based violence among females (of all ages) and non-binary gender. The study is an autopsy-based retrospective observational study conducted at the department of forensic medicine and toxicology, Seth G.S medical college and KEM hospital, Mumbai.

The report summarizes the examination findings of autopsy records of women (including non-binary gender) and presents the proportion of deaths associated with gender-based violence among them. It delineates select social factors and perpetrator characteristics related to gender-based violence.

KEY FINDINGS

The study found that 12.3% of females out of the 1,467 autopsies conducted on females had an underlying history or indication of gender-based violence. The results indicate that 67% of the female victims were married. Most (75%) women were between 15 to 44 years of age; the mean age of victims was 34.8 years. 99% of the deaths occurred at home or in private spaces.

The study revealed that most of the fatalities were due to suicide (47%) and accidents (47%), followed by homicide (6%). Death occurred by burns in 58% of cases, hanging in 20% of cases, poisoning in 16% of cases, jumping from a height in 3%, and murder in 3%.

In about 61% of deaths, intimate partners were the perpetrators, while in 39%, family members were the perpetrators. Marital disputes and family issues were the prime reasons for the death, accounting for 87% of all cases. Unsuccessful relationships with intimate partners or love affairs contributed to 13% of all deaths. In 4 out of 10 deaths, the relatives/kin of the victim did not give any contextual information.

The study highlights the critical gaps in the availability and completeness of contextual data concerning gender-based violence among the study subjects.

The study recommends strengthening data management at the institutional level and building the capabilities of stakeholders in ethical data collection. It advocates collecting and disaggregating data on unnatural deaths received at the autopsy centres regularly to unearth the proportion of gender-based violence among these deaths. A focus on data collection and interpretation, thus, remains the mainstay of evidence-based decision-making. The study emphasizes the need for systematic coordination and linkage with other allied agencies for producing accurate statistics and communication with policymakers to present a comprehensive picture of the burden of deaths due to gender-based violence.

This report is for researchers, professionals, policymakers, and students interested in understanding the scale and patterns of injuries resulting from gender-based violence. It highlights the need to strengthen administrative data collection regarding deaths due to gender-based violence in women (including non-binary gender) that would be critical for developing evidence-based interventions to combat gender-based violence.
Finally, the report provides recommendations based on key findings that would guide and inform actions at the institutional and policy level.

INTRODUCTION

Gender-based violence connotes harmful acts directed at an individual based on gender. It is rooted in gender inequality that stems from power differentials in society, obtuse norms, and prevailing societal patriarchy. Women experience violence in settings such as the home, the community, armed conflicts, judicial custody, and shelter homes. Violence has serious physical, mental, sexual, and reproductive health consequences for the woman. It varies from domestic abuse, child marriages, acid attacks, foeticide, honour killings, and bride burning or dowry death.

Global estimates reveal that 1 in 3 women have experienced physical or sexual violence; 27% of ever-married/ partnered women aged 15-49 years have been subjected to violence (physical or sexual) from a current or former husband or partner at least once in their lifetime. Data show that globally, about 38 percent of all murders are committed by intimate partners.[1]

In 2020, India recorded 3,71,503 crimes against, 7,045 victims of dowry deaths, 226 victims of murder with rape/ gang rape, and 5,132 victims of abetment to suicide (National Crime Records Bureau report, 2021).

NCRB report, 2021 Highlights

- 5,543 crimes were recorded in 2021 in Mumbai alone under IPC & Special and local laws (SLL)
- Total crime rate against women is 65.1 per 1 lakh population in the city
- There were 37 victims of murders in women (adult and children) and 2 victims of murder in transgenders

NCRB: National Crime Records Bureau
IPC: Indian Penal Code

Most crimes against women were registered under cruelty by husbands or relatives, followed by an assault on a woman with intent to outrage her modesty, kidnapping, abduction of women, and rape. The National Family and Health Survey (NFHS-5) data reports that 29.3% of ever-married women (age 18-49 years) in the country have experienced spousal violence.

While the national statistics are concerning, the scenario in Mumbai is just as alarming. According to the National Crime Record Bureau (NCRB 2020), Mumbai ranks second among metro cities in crimes against women. In 2021 alone, Mumbai recorded 5,543 cases of crime against women, a stark 21% rise from the number of crimes recorded in the year before (NCRB report, 2021).[2] In 2021, it recorded 37 homicides in women and two in transgender. The report also highlights 36 cases of abetment to suicide of women, 12 dowry deaths, and four homicides with rape.

Deaths in women and girl due to GBV is, by far, the most extreme outcome of violence. In 2020, about 47,000 women and girls worldwide were killed by their intimate partners or other family members. [2021 UNODC (United Nations Office on Drugs and Crime) report][13]. Throughout India, several forms of violence against women fit within the definition of femicide, including domestic violence, honour killings, dowry deaths, and infanticide. However, there is no comprehensive data available to give estimates of femicide. The identification of death due to GBV cases can also be complex in some circumstances, such as the neglect of a female child or the unwillingness of the family to share details due to the fear of social ostracization.

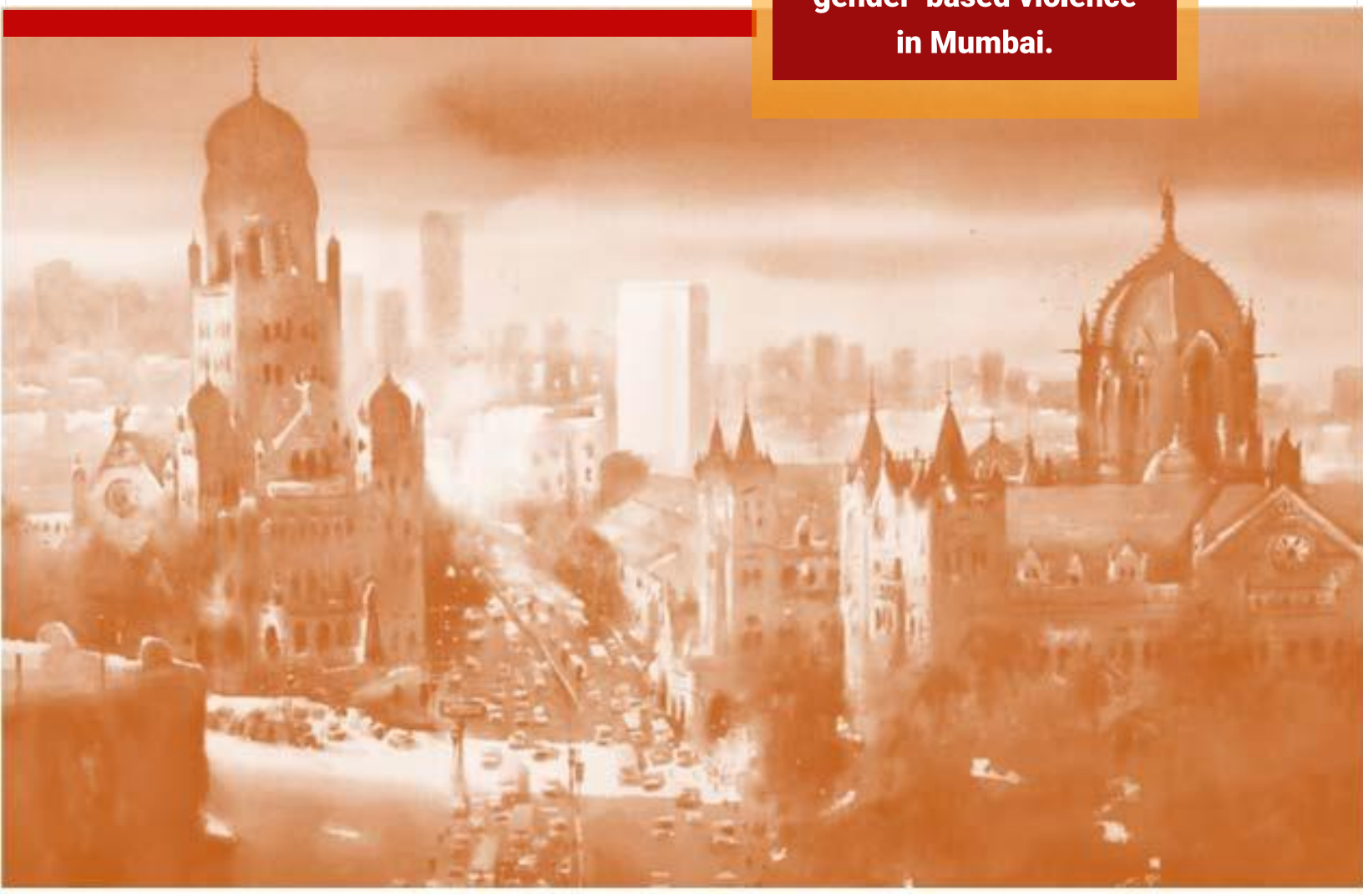
The study provides insights into the magnitude of the problem vis-à-vis violence against women, especially within the family or private sphere. Quality administrative data and statistics related to gender-based violence are critical for monitoring the extent of violence systematically and for making informed policy reforms and strategy development to address the issue of gender-based violence.

With this background, the department of forensic medicine and toxicology analyzed 5-year data abstracted from the autopsy examinations of unnatural deaths among females and non-binary

gender to understand the share of death associated with gender-based violence. The findings would strengthen the knowledge base on violence against women and support informed decision-making.

The study aims to identify the proportion of deaths due to gender-based violence among females of all ages and non-binary gender by analysing quantitative data from autopsy examinations conducted across five years by the department of forensic medicine and toxicology. Additionally, the study seeks to understand the nature of the injury in the victims, the mechanism of killing, and the social and demographic factors of the victim and the perpetrator from available data.

The findings of this study will be used to **inform policy, practice,** and research on **gender-based violence in Mumbai.**



LITERATURE REVIEW

An unnatural death is a death caused by external causes which includes death due to intentional injury such as homicide or suicide, and death caused by unintentional injury in an accidental manner. A sudden, accidental, unexpected, or traumatic death of a female shatters the lives of the survivors or the family, especially, when their children are young.[4]

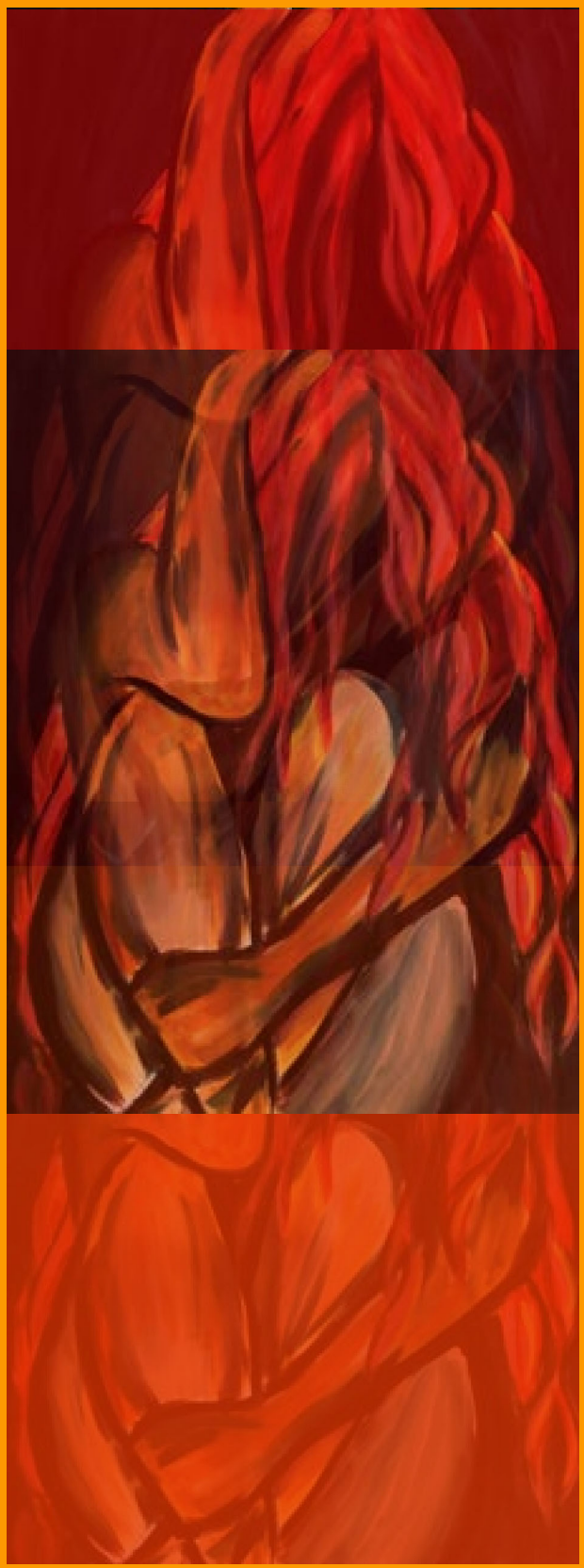
Unnatural deaths of women globally and in India is a significant public health concern. It is important to study the contributory causes / aetiology of these unnatural female deaths in the context of gender differences attributed to men and women both in the family and in society.[5]
According to NCRB 2021 data, the number of unnatural deaths among women in India has increased significantly over the past few years. In 2021, a total of 47,391 women died accounting for 10.2% of all unnatural deaths in India. In India, the scenario is particularly concerning, with domestic violence as dowry-related deaths pose as a major contributor to unnatural female fatalities. Additionally, the country also has a high rate of suicides among women, which are often linked to factors such as marital problems, mental health issues, and economic stress.

Globally, accidents are one of the leading causes of unnatural deaths among women, followed by drowning, poisoning, and falls. In some regions, intimate partner violence (IPV) is also a major contributor to unnatural deaths among women. Estimates published by WHO 2021, indicate that globally about 1 in 3 (30%) of women worldwide have been subjected to either physical and/or sexual intimate partner violence or non-partner sexual violence in their lifetime, that these deaths are often preventable and are closely linked to gender inequalities, social norms, and a lack of access to essential resources and services. Likewise, UNODC and UN Women report shows that,

globally on average, more than five women or girls killed every hour by someone in their own family in 2021. [unwomen.org/en/news-stories/press-release/2022]

Violence and psychological distress are independently associated with suicidal behaviour. According to study by Pillai 2009, have shown that survivors of gender-based violence are significantly more likely to experience depression, anxiety, and other mental health issues, which can lead to an increased risk of suicide. In addition, women who experience violence are more likely to engage in self-harm behaviours. A study by Deepa Rasheed reported that 19% of Indian women who have ever been married have been beaten by their husbands. There is also mounting evidence from population-based studies revealing that between 21 and 48 percent of women in India's various socio-cultural situations have been the victims of physical abuse.[6]

According to a report published by the National Crimes Records Bureau of India for the year 2020, a total of 35,331 allegations of criminal acts committed against women majorly fell into the categories of "Cruelty by the Husband or his Family" (30.2%), "Assault on Women with Purpose to Offend her Humility" (19.7%), "Kidnapping of Women" (19.0%), and "Rape" (7.2%).
Studies in India have shown that gender related deaths are a significant cause of female deaths in the country. Such deaths are often disguised as accidents or suicides, but some evidence suggests they may be homicides.



Suicide

The World Health Organization (WHO) reports that every year, approximately one million people die from suicide globally, and suicide is the second leading cause of death among 15-29 year old. Globally, the scenario is no different. According to the World Health Organization, 2019 global estimates (per 100,000 population) the suicide rate in India was 12.9 as compared to 11.3 in Australia and 14.5 in the USA, in the same year.

In much of the world, suicide is stigmatized and condemned for religious or cultural reasons. In some countries, suicidal behaviour is a criminal offence punishable by law. Suicide is therefore often a secretive act surrounded by taboo, and may be unrecognized, misclassified or deliberately hidden in official records of death.[7]

In India, attempt to suicide is a punishable offence under Section 309 of IPC and so is Abetment of Suicide as mentioned under Section 306 of IPC. It states that any person who abets or assists a person in the commission of suicide shall be punished with imprisonment for a term which may extend up to 10 years and shall also be liable to fine.
Ahmad (2008) explores the issue of abetment of suicides of women in India. He states that the root cause of bride burning, as well as other forms of domestic violence against women, lies in their subordination and their frequent powerlessness within their husbands' family following marriage. "Thus, cases of bride burning can and do occur without dowry being the causal factor, although dowry is possibly the single largest cause." ("bride burning | Encyclopedia.com")
Sociocultural factors undermine the veracity of these records. Deaths in rural areas are certified by village bosses (panchyatdars) though all cases are investigated by the police. The process of registering a death is particularly inefficient in rural areas.[8] Eventually, only about 25% of deaths are registered and only about 10% are medically certified.[9,10] Death by suicide is frequently reported as due to illness or accident to avoid police investigation.

The families of suicide victims usually do not want post-mortem examinations because of the fear of mutilation of the body, the time-consuming nature of the process, and the stigma involved. The NCRB data are based on police records. Statistics derived from police records hence under-report suicides.

Most female suicides are reported as "accidental deaths" by family members.

Gender Inequality & Burns

Accidental burns are also a serious problem in India, particularly among women who may be subjected to violence or abuse in the home. In some cases, these burns may be the result of domestic accidents, such as cooking fires or hot water spills. However, in other cases, they may be the result of intentional harm, such as being set on fire by an abusive partner.

Burns are a global public health problem, while 35.6% of women globally have experienced physical and/or sexual intimate partner and non-partner violence in their lifetime, 40.2% of women in the South-East Asia Region are experiencing these violations. The South-East Asia Region has the second highest rate of lifetime prevalence of intimate partner violence (33%) [WHO Fact Sheet/GBV, 2021]. In India, over 1,000,000 people are moderately or severely burnt every year. Burns are the second most common injury in rural Nepal, accounting for 5% of disabilities. Burns occur in the home and workplace. Community surveys in Bangladesh and Ethiopia show that 80–90% of burns occur at home. Children and women are usually burned in domestic kitchens. [WHO Fact Sheet/Burns, 2021]

Burn injuries are a widespread problem among vulnerable populations, such as the impoverished, mentally ill, and women. Women and girls are more likely to be exposed to burn hazards, often related to household activities like cooking. Unsafe cooking arrangements, such as ground-level cookstoves, open fires, and use of unregulated LPG cookstoves, as well as wearing traditional flammable clothing contribute to the problem. In some cases, burn injuries are also caused intentionally, to injure or maim women and girls as a form of gender-based violence.[11]

A study in The Lancet by Sanghavi and colleagues' highlights burns as a major public health concern and preventable cause of death in India. Most deaths (106,000 of 163,000 in 2001) were among young women, mostly aged 15-34 years. One study reported that 70% of female burn cases in a hospital were suicidal, and 74% of the cases were married women.[12] Burns were caused by kitchen accidents, self-immolation or suicides, and domestic violence-related homicides. The problem of fire-related deaths and injuries is under documented, but studies from South Asia show that intentional burns are more often among females, larger, and more fatal compared to accidental burns.

Studies on burns in India may not accurately document instances of domestic violence as many victims may not survive or be able to participate in surveys. Studies have shown that 40-70% of female murder victims have been killed by intimate partners. Most often, it becomes difficult to assess the cause of burns, such as accidental, suicide, or murder. Women in

India may be reluctant to disclose abuse due to concerns about their children or the presence of their husband or mother-in-law.[11]

As observed in hospital records, most unnatural female death cases reported as "accidental deaths." However, certain patterns in these cases, such as stove bursts reported at unusual hours, consuming poison by mistake or the nature of death indicating inconsistencies between patient history and injury patterns, suggest the need for further investigation. Health professionals often fail to document these details or ask about domestic violence, limiting their role to treating physical symptoms.

Domestic violence is considered private behaviour beyond the scope of medical professionals, who believe their role is only to treat disease, which leads to under reporting of such cases. Nevertheless, more exploration needed to understand the relationship between burns, domestic violence, and intimate partner violence.

Overall, it is noted that unnatural deaths of females in India are deeply associated with violence by an intimate partner or other family member. A way in which women attempt suicide in India is by burning themselves or by other common methods like consumption of poisonous substances, such as pesticides or insecticides, or hanging. This study tries to take a comprehensive and integrated approach that considers the underlying causes and social factors that contribute to these unnatural deaths.

“After getting married, my sister's husband repeatedly beat her.

One night, her mother- in-law and her husband poured diesel and lit fire to her body"

Victims Relative's Statement

METHODOLOGY

Project Duration: 20th May 2022 to 31st March 2023

Implementation was carried out in the following steps:

Constitution of Technical Working Group (TWG)

To offer technical and scientific guidance for the research investigation, a Technical Working Group (TWG) established. The TWG included esteemed technical experts from academia, law, resource faculty from the institute, and members from the Data Impact team at Vital Strategies. The TWG guided the finalization of the research methodology, data collection tool, including the variables that would be collected and working definition of deaths due to gender-based violence.

The list of TWG members is attached as an annexure (1).

Finalization of study protocols

a. Study design: Retrospective, Cross Sectional Study

b. Study setting: Department of Forensic Medicine & Toxicology, Seth Gordhandas Sunderdas Medical College (GSMC) and King Edward Memorial (KEM) hospital, Mumbai

   The autopsy centre at the KEM hospital conducts approximately 1,200 - 1,300 autopsies per year. There are ten autopsy centres in the city of Mumbai. The GSMC & KEM hospital is a tertiary hospital; it does not have a defined catchment area. The autopsy centre at KEM receives dead bodies from within the city and peripheral district hospitals.

c. Sampling frame: Records of autopsies of women, girls and non-binary gender who died of unnatural causes, conducted between May 2017 to April 2022, at KEM hospital.

d. Sampling Technique: Convenience sampling

e. Study population and sample size:

   Autopsies conducted between May 2017 and April 2022 on all women, girls, and non-binary gender who died of unnatural causes in whom there was a history indicative of violence are included in the study.

- **Inclusion criteria:**

Deaths in women (of all ages) and non-binary gender where the death is certified as unnatural will be examined. Deaths due to undetermined intention events, accidental exposure to unspecified factors or intoxication, or injuries will be evaluated.
It comprises homicides, suicides, and accidents having a history suggestive of gender-based violence.
Records in which contextual information regarding gender-based violence (GBV) is missing or unclear will be reviewed and those in which there is a discrepancy between the statement of the victim or relative, findings from the autopsy examination, the circumstance of death, site, nature, and pattern of injury will be included in the analysis.
Cases like the below example will be examined– eg. In a case deemed an accidental death due to thermal burns from an oil lamp (known as diya) while the woman was seated, extensive burn injuries were observed on her upper trunk on post-mortem examination but not on her lower limbs. This raises a suspicion of underlying foul play and will be examined for indication of

gender-based violence.
Additionally, deaths due to accidental burns where the total burn surface area (TBSA) is least 50% will be included.

- **Exclusion criteria:**

Deaths due to natural causes, chronic illness or mental illness/stress, and any other pathological conditions will be excluded from the analysis. History of those that died from accidents (falls, train accidents, or road crashes) will be scrutinized for indication of gender-based violence; those that are not suggestive of GBV will be excluded.

f. **Definition:** *The United Nations defines violence against women as "any act of gender-based violence that results in, or is likely to result in, physical, sexual, or mental harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life."* [who.int/health-topics/violence-against-women]

g. **Working definition:** For the current study, the above definition was expanded to include abetted suicide in addition to homicides as follows -
"Gender-related killings of women and girls are defined as intentional homicides and abetted suicide of women, girls and non-binary gender victims perpetrated by intimate partners, other family members, or other identified or unidentified individuals, using methods or circumstances that suggest gender-based motivations.

'Abetting suicide' under the IPC refers to any act of inciting someone to commit suicide, conspiring to do so, or knowingly assisting someone in doing so. The presumption of abetment of suicide requires that the woman had been subjected to cruelty by her husband or relative that drove her to commit suicide, as indicated in precedents cited.[8,9]

Ethical Approval

The study protocol was submitted to the Institutional Ethics Committee; it received approval and the requirement for informed consent of the relatives of the deceased was waived. The study was conducted in accordance with ICH-GCP, CDSCO-GCP guidelines, Declaration of Helsinki (October 2000) and amended schedule-Y (2005) & ICMR 2006 guidelines.

A tri-party agreement was signed between the Department of Forensic Medicine and Toxicology, Seth G.S Medical College & K.E.M hospital and Data Impact Program, Vital Strategies (under the Data for Health Initiative) for conducting the research. Vital Strategies, NY, provided the necessary financial and technical support for the project.

Review of sample records (pilot study) and finalization of tool

a. **Pilot study:** A pilot sample of 50 cases was examined to gain an understanding of the approximate volume of cases of gender-based violence that could be obtained from the total number of autopsy records. Likewise, this also helped to stipulate the variables that could be captured for the research.

b. **Data collection tool** : A data collection tool was developed to collect and compile the information pertaining to the study. The broad components of the data extraction tool included the following:

- household and individual characteristics
- deceased details, including incident/death reporting details and time of death.
- mechanism and manner of injury
- perpetrator information

The data extraction tool was modified based on the pilot sample data. The data collection tool is attached as an annexure (2).

c. Source of data : Various documents were referred for collating information that included-

- Autopsy records that highlighted clinical history & examination findings of the victim, post-mortem findings, opinion, and conclusions drawn by the officer in-charge
- Victim and/or relative statements taken by the police
- Police inquest report/panchanama report
- Police chargesheet, if available

Data extraction, compilation, and validation

Records of women, girls, and non-binary gender whose autopsy examinations were conducted between May 2017 and April 2022 were retrieved and segregated from that of men. Records of those who died from unnatural causes were examined for history of gender-based violence related to their death.

a. Information in the autopsy and police records was translated from Marathi-to-English
b. The data extraction tool was used to gather relevant information of females & non-binary gender who died from unnatural causes and with history suggestive of violence
c. The information obtained was then verified by police chargesheets or FIR files, wherever available and possible.
d. All data including cases with missing information were entered into an Excel spreadsheet

Statistical measures, analysis, and interpretation of study findings

The statistical measures used in the study include mean, median, range, proportions, and interval estimates. Data were analyzed using excel and interpreted.

RESULTS

The findings of the study data are presented through graphs & tables in this section.

Total case distribution:
Autopsies on females comprised 24% (1,467) of the total 6,190 medico-legal autopsies conducted during the period from May 2017 until April 2022.

There were no non-binary gender deaths among the autopsy cases. There were no deaths in which disability was apparent on autopsy examination.Of the 1,467 females, 840 (57.3%) had died of unnatural causes. Of the 840 deaths, 181 were alleged cases of gender-based violence. These 181 females comprised 42 females in whom the victim or relative statement included a history of violence and 139 females in whom there was no obvious history of violence, but there was a discrepancy in the site or pattern of injury circumstance, autopsy findings, and relatives' statements, which pointed towards gender-based violence. Of the 1,467 female autopsies, 12.3% (181) had a history of gender-based violence.
These 181 cases will be considered for further analysis.

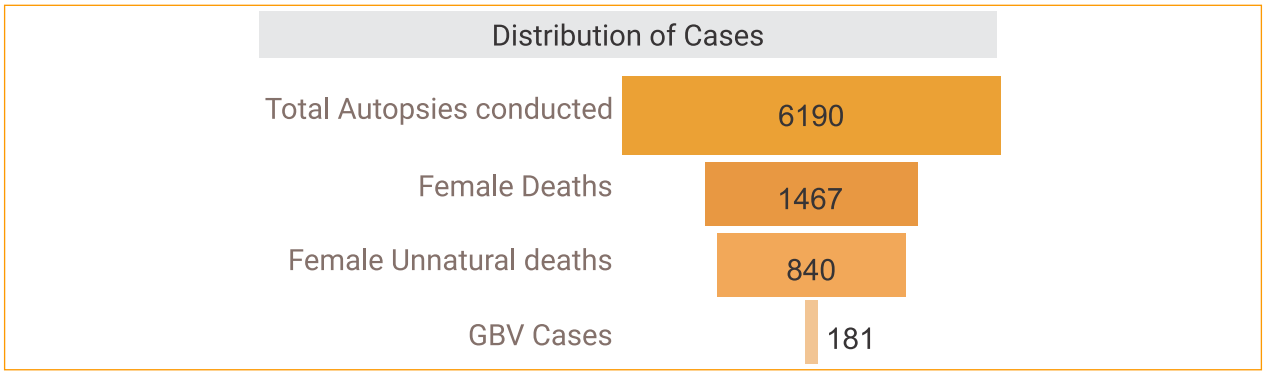


FIGURE 1.TOTAL CASE DISTRIBUTION

Year wise distribution of deaths due to gender-based violence (GBV)

Total 181 deaths due to GBV were identified. The graph shows the number of deaths due to gender-based violence over the study period.

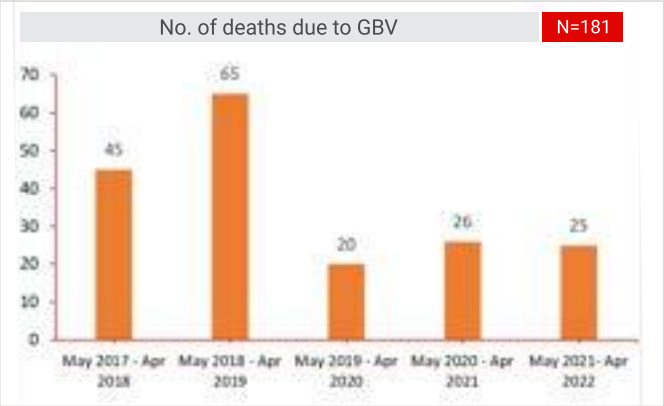


FIGURE 2. NUMBER OF DEATHS DUE TO GBV

Distribution of cases by manner of death:

Of 181 deaths, 86 (47%) were from suicide, 85 (47%) were from accident, and 10 (6%) cases were from homicide by husband/ intimate friend or relative

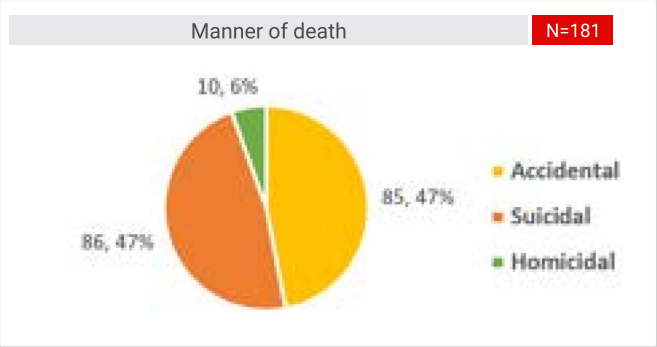


FIGURE 3. DISTRIBUTION OF CASES BY MANNER OF DEATH

Distribution of cases by location of incident:

Overall, 139 (77%) of the women resided in urban areas and 42 (23%) in rural areas.
179 (99%) of the deaths took place in home or private spaces, regardless of the area of residence.2 (1%) took place outside home.

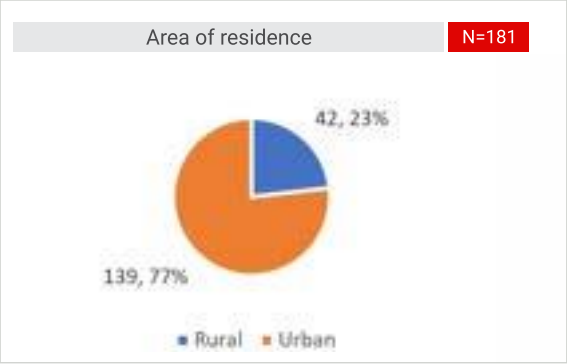


FIGURE 4A. DISTRIBUTION OF CASES BY AREA OF RESIDENCE

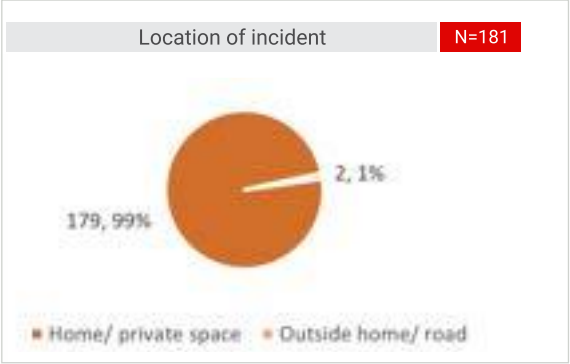


FIGURE 4B. DISTRIBUTION OF CASES BY LOCATION OF INCIDENT

Further exploration of the manner of death across area of residence shows that 69 (50%) of the women who resided in the urban areas, died by suicide while, 24 (57%) of those who resided in rural areas, died by accident (Table 1).

Manner of death	Residence of victim	
	Urban Area	Rural Area
Suicidal	69 (50%)	17 (41%)
Accidental	61 (44%)	24 (57%)
Homicidal	9 (6%)	1 (2%)
Grand Total	139 (100%)	42 (100%)

TABLE 1. MANNER OF DEATH W.R.T AREA OF RESIDENCE

Distribution of cases by age

136 (75%) of the 181 cases were in the age group between 15-44 years. Fig. 5 shows that most women i.e., 81 (45%) women were in the 15 to 29 years age group followed by 55 (30%) in the 30-44 years age group.

The mean age was found to be 34.8 years (32.30- 37.32, 95% CI). The median age of the victims (total cases) was 30.5 years (age range 11 months to 87 years).

The median age of the victims who died by suicide was 28 years, by accident was 32 years and by homicide was 24.5 years.

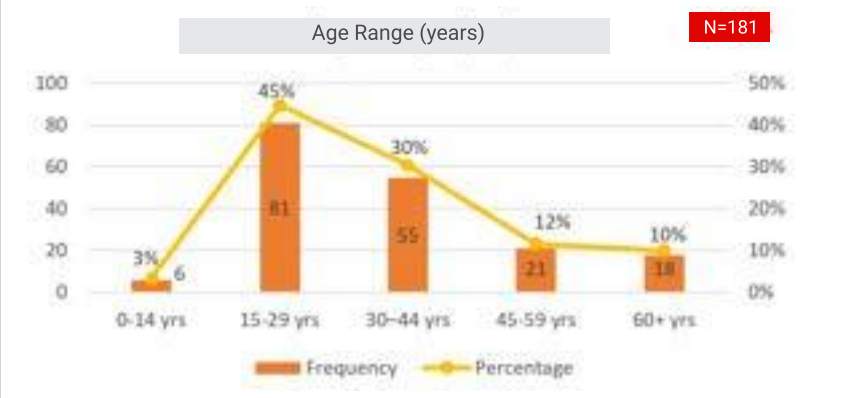


FIGURE 5. DISTRIBUTION OF CASES BY AGE

Distribution of cases by marital status and pregnancy status

Data shows that 121 (67%) of females were married, 53 (29%) were unmarried & 7 (4%) were either widowed or divorced. Of those who were married, 5 (4%) were pregnant at the time of death.

FIGURE 6A. DISTRIBUTION OF CASES BY MARITAL STATUS

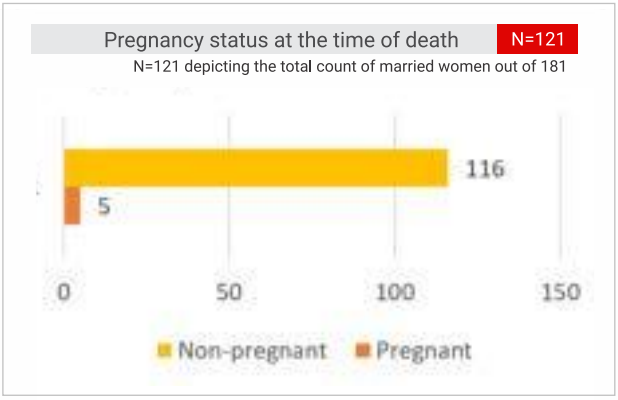


FIGURE 6B. DISTRIBUTION OF CASES BY PREGNANCY STATUS

The following table presents a summary of the source of variables and missing data in the study. As observed, socio-demographic data related to the deceased and the perpetrator were not available for most cases.

Since the victim's education, occupation, and the number of children were not available for all the cases in the autopsy notes, these variables could not be considered for analysis.

Variables	Variable name	Source record	No. of cases in which the variable was available	No. of cases in which variable was not available
Related to Victim	Education status	Autopsy reports	14 (8%)	167 (92%)
	Employment status	Autopsy reports	43 (24%)	138 (76%)
	Family Income of household	Autopsy reports	0	181 (100%)
	No. of children	Autopsy reports	137 (76%)	44 (24%)
	Record of physical, sexual, or psychological violence/harassment	Autopsy reports	14 (8%)	167 (92%)
Related to perpetrator	Age of Perpetrator	Relative statement	17 (9%)	164 (91%)
	Education	Relative statement	0	181 (100%)
	Employment Status	Relative statement	0	181 (100%)
	Intoxication with controlled drugs or other psychoactive substances	Relative statement	0	181 (100%)
	Income	Relative statement	0	181 (100%)
	Marital status	Relative statement	0	181 (100%)

Table 2. Missing data w.r.t key variables

Distribution of cases by nature of injury

Out of 181 cases, deaths were caused by burns in 58% (105), hanging in 20% (36), and poisoning in 16% (29) cases. Of these, 5 (3%) were reported dead after jumping from a height. Six (3%) aggravated assaults were noted.

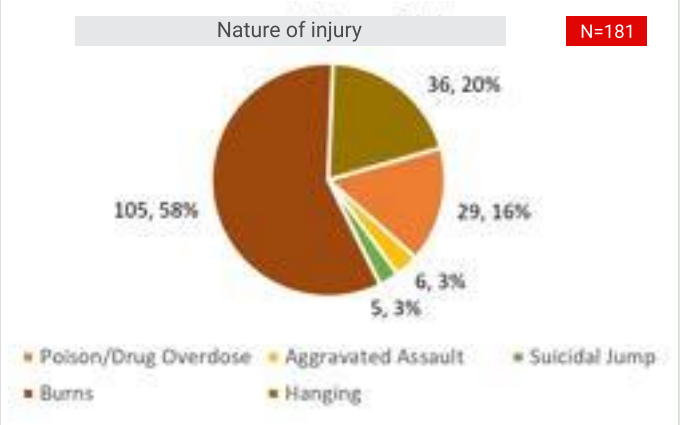


FIGURE 7. DISTRIBUTION OF CASES BY NATURE OF INJURY

Distribution of cases by method of killing

As shown in graph, 70 (38%) of the deaths resulted from use of drugs and chemical substances, followed by fire, flames or smoke in 64 (35%) deaths and attack without weapon in 44 (24%) deaths.

The following table shows the method of killing in each of accidental, homicidal, and suicidal deaths.

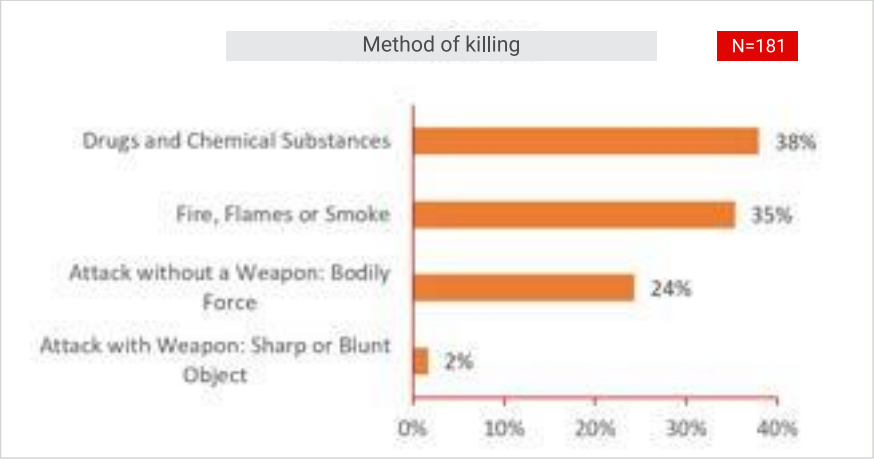


FIGURE 8. DISTRIBUTION OF CASES BY METHOD OF KILLING

The following table shows the method of killing in each of accidental, homicidal, and suicidal deaths.

Method of Killing	**Accidental**
Fire, flames, or smoke	64 (75%)
Drugs and chemical substances	21
Grand total	**85**

TABLE 3a.

Method of Killing	**Suicidal**
Drugs and chemical substances	44 (51%)
Attack without a weapon: Bodily force	41 (48%)
Attack with Weapon: Sharp or blunt object	1
Grand total	**86**

TABLE 3b.

Method of Killing	**Homicidal**
Drugs and chemical substances	5 (50%)
Attack without a weapon: Bodily force	3
Attack with Weapon: Sharp or blunt object	2
Grand total	**10**

TABLE 3c

The tables depicts that the most common method of killing was fire, flames, or smoke (in 75% cases) in deaths due to accidents, while it was drugs and chemical substances in deaths due to homicide (50% deaths) and that due to suicide (51% deaths).

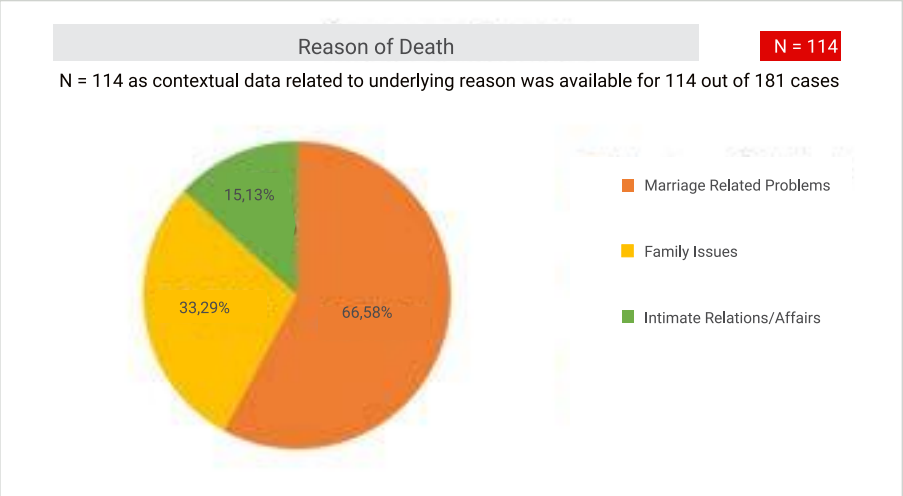


FIGURE 9. DISTRIBUTION OF CASES BY REASON OF DEATH

Distribution of cases by underlying reason:

In 66 deaths (58%), marital dispute was cited as the underlying reason for death while in 33 (29%) deaths, family issues emerged as the cause of death. In 15 deaths (13%), the reasons quoted in the statements were unsuccessful relations with intimate partners or love affairs.

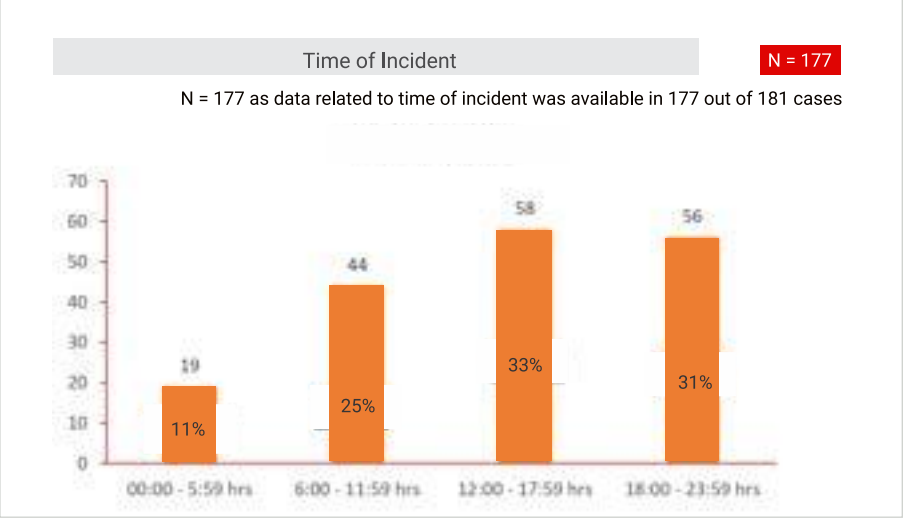


FIGURE 10. DISTRIBUTION OF CASES BY TIME OF INCIDENT

Distribution of cases by time of incident:

58 (33%) of incidents occurred between 12:00 hrs and 17:59 hrs followed by 56 (31%) that occurred between 18:00 hrs and 23:59 hrs.

The time of incident in accidental, suicidal, and homicidal death is depicted in the table below.

Accidental death		
Count	%	Time of incident
27	32%	12:00 - 17:59 hrs
25	29%	6:00 - 11:59 hrs
25	29%	18:00 - 23:59 hrs

TABLE 4a

Suicidal death		
Count	%	Time of incident
29	34%	12:00 - 17:59 hrs
26	30%	18:00 - 23:59 hrs

TABLE 4b

Homicidal death		
Count	%	Time of incident
5	50%	18:00 - 23:59 hrs
3	30%	6:00 - 11:59 hrs

TABLE 4c

Distribution of cases by post-incident survival duration:

Of the total, 46 (21%) women were brought dead to the hospital. With an average hospital stay of less than a day, most of the victims of hanging and jumping did not survive the incident. The average survival duration for assault victims was three days (0 to 16 days), for poison victims was five days (0 to 43 days), and for burn victims was six days (0 to 102 days).

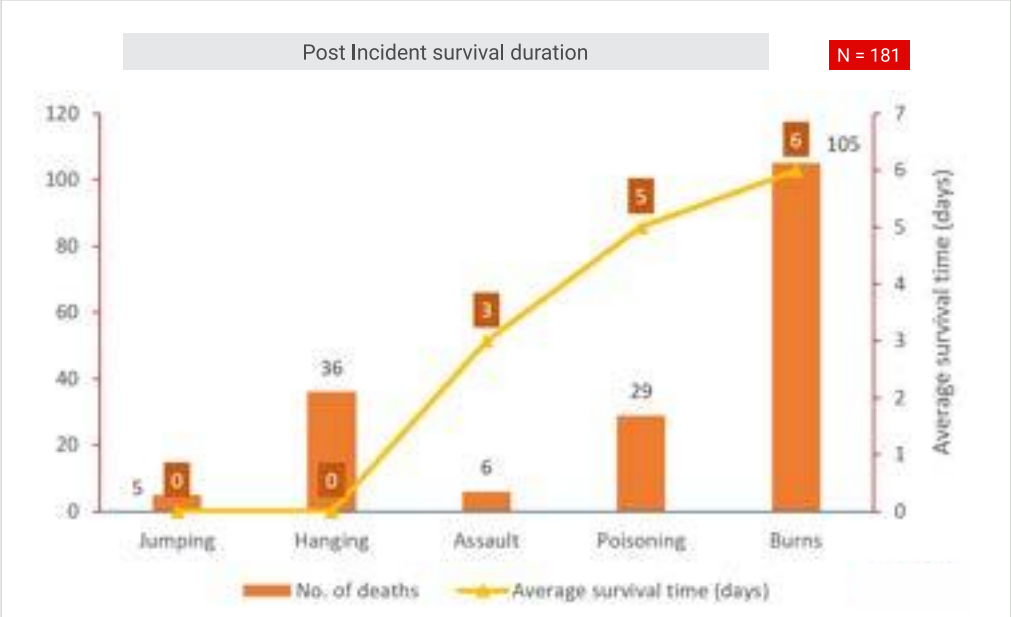


FIGURE 11. DISTRIBUTION OF CASES BY POST INCIDENT SURVIVAL DURATION

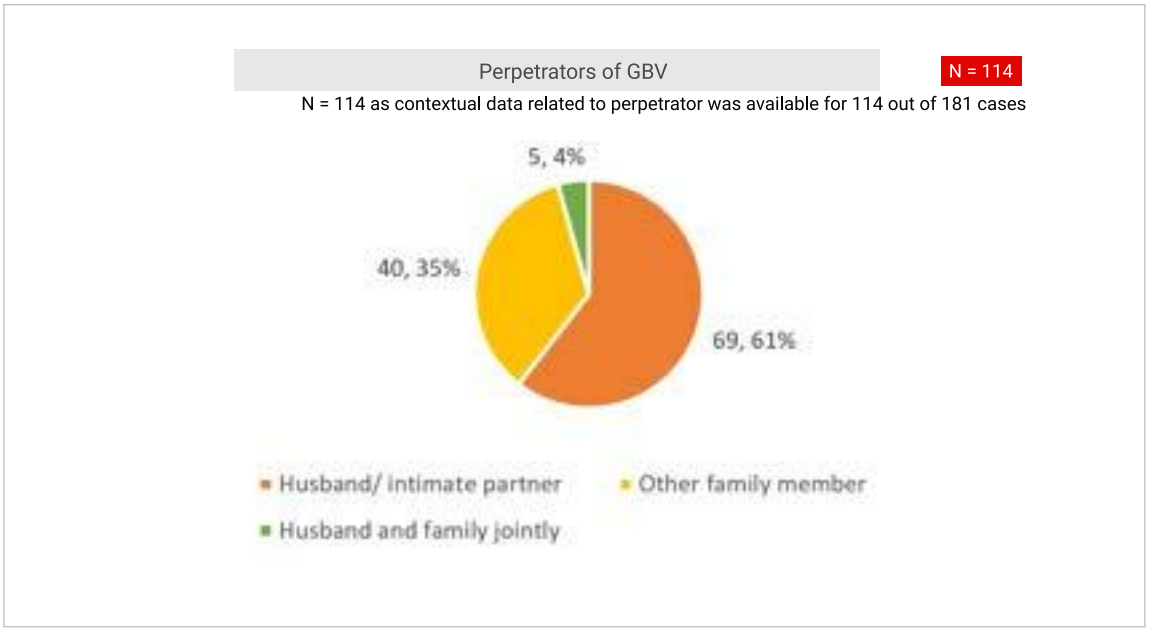


FIGURE 12. DISTRIBUTION OF CASES BY PERPETRATORS OF GBV

Distribution of cases on cruelty by perpetrator

In 69 (61%) of 114 cases, husbands or intimate partners were responsible for violence committed against the women, in 40 (35%), family members were responsible for the victim's significant injuries and in 5 (4%) incidents, the perpetrators were the husband and family member jointly.

No contextual data

67 (37%) of the cases had no contextual information or the reason cited for the death in the relative statement

DISCUSSION

Summary of findings

The study presents the proportion and pattern of deaths due to gender-based violence among females of all ages and non-binary gender from autopsies conducted at the department of forensic medicine and toxicology. The study analysed 1,467 autopsies conducted on females in the study period, of which 12.3% had underlying gender-based violence. The study showed that most unnatural deaths were accidental (47%) or suicidal (47%). 6% were homicidal. Almost all deaths occurred at home or in private spaces. Three-fourths of victims were in the 15-44 age group, and most women were aged between 15 to 29 years. 2/3rd of the women who died were married, and 4% were pregnant. Overall, burns were the most common injury in the victims, followed by hanging. The mean survival duration following the violent incident was the least in jumping and hanging (0 days) and the maximum in burn victims (6 days). Drugs and chemical substances were the most common methods used for killing, followed closely by fire, flames, or smoke.

There was no contextual information about the reason or the alleged perpetrator in 4 out of 10 deaths. In 2/3rd deaths, husbands or intimate partners were the perpetrators. In 35% of women, other family members perpetrated the violence, and in 4%, violence was perpetrated jointly by the husband and family members. The most common underlying reason for the death was a marital dispute or discord. In 13% of women, intimate partner issues were the reason for their death.

Interpretation of results

The mean age of the women was 34.8 years (32.30 - 37.32; 95% CI). 75% of the women were between 15 and 44 years; the majority (45%) were between 15 and 29 years. Several studies show that most victims of unnatural deaths were in the age group of 21-40 years. [4,14,15,16]

The study showed that 67% of the victims were married, which is in alignment with other studies.[4,14,17,18] It may be because the age group coincides with the age of marriage of Indian women or the reproductive age group. Marriage causes a change in the woman's social environment and may also lead to stress associated with the alteration in her social status or marital discord.

Accidental deaths (47%) and suicidal deaths (47%) were the most common manners of death. This finding is similar to that observed in few studies where most deaths were accidental or suicidal. [19,20,21] Often, unnatural deaths in women are documented as accidents or suicides. It may, in part, be because the victim's family refrains from reporting any foul play as it is challenging to prove the circumstances that resulted in the unnatural death or due to the fear of social stigmatization.In the study, the context related to the reason of death is obscure in 37% of cases owing to fragmented data. [13] Where context was available, 61% of women, husbands or intimate partners were the alleged perpetrators. The finding is consistent with findings observed in other studies [4,20,21] In the present study, most incidents occurred inside home or private spaces. It resonates with findings of other studies.[2,4,16] Most killings are perpetrated by those closest to the victim. Spouses or partners are involved in most cases. The killing may happen when women feel they are in safe precincts with the ones closest to them.

In the present study, 58% of the women died of injury due to burns, and most belong in the age range of 15-29 yrs. The finding is consistent with other studies in which burns are the most preferred mode of suicide.[20] Contrastingly, in an autopsy-based study from Sri Lanka, the proportion of women who died of burns was relatively low (16%).[4]

In India, dowry-related death or bride-burning is pervasive through all social strata. When dowry demands are not met, there is resulting marital discord. The brides are then harassed or killed by their husbands or in-laws to compel their families to fulfil the dowry obligations. Seeking an escape from the brutality of their situation, sometimes women resort to suicide. Most burn injuries often get reported and dismissed as accidents without a probe, perhaps, due to the lack of concrete evidence of underlying violence that led to the death. We can strongly suspect these deaths to be due to either abetment to suicide or homicide. Many a time, Indian women commit suicide using materials readily available in homes, such as kerosene oil, match sticks, and cooking material. We may attribute the high incidence of such events to cooking on open, unguarded flames.

The study found that in 37% of the cases, the relatives/husbands did not furnish any explanation for the severe burns, poisoning, and hanging that led to death. The UNODC report on gender killing points out the gaps in the global data on gender-related killings of women; four out of ten lack contextual information. It is, therefore, imperative that the context of killings of women is thoroughly investigated and understood to pinpoint and tackle gender-motivated homicides. [22]

LIMITATIONS

The study recognizes the following limitations-

i. **Sampling method:**
The study used a convenience sampling method; the findings of the study cannot be extrapolated to the entire population.

ii. **Study design**
Owing to the cross-sectional nature of the study, we were not able to report temporal or causal relationships.

iii. **Data coverage**
We have limited data regarding the context of the death and education, income, and other socio-demographic factors related to the victims since, in most cases, the relative statements do not contain this information. While in some cases, we were able to extract information about instances of violence or dispute preceding the event, we could not discern if the women faced habitual violence.
Similarly, we could not collect information about the characteristics of the alleged perpetrator as it was not available in the statements; this posed a challenge to report statistical associations between the death and other variables.

CHALLENGES

I. **Data extraction-**

Data available in the autopsy reports were in paper-based format. Extracting information provided in the relative statements posed a challenge since the records included history related to the deceased in the descriptive form in the regional language (Marathi); data extraction included translating every case history before segregating records for indications of violence.

II. **Access to police records -**

It was difficult to access information regarding the alleged perpetrator for cases referred to the KEM autopsy centre from neighbouring districts since it required the team to seek permissions and establish constant communication with police stations outside the city's jurisdiction. It was challenging due to the absence of a formal coordination mechanism between the two agencies.

III. **Biases in recognising GBV cases -**

There is a challenge of low reporting and recording of deaths due to gender-based violence, due to social barriers to admitting, confronting, or even discussing the issue. Hence, it is seen that in cases of female unnatural deaths, the investigation is poorly documented by the police and there is lack of awareness or motivation by healthcare staff to report the death as gender related violence.

IMPLICATIONS

The findings from this study contribute to the growing knowledge and evidence-base regarding the nature and pattern of deaths due to gender-based violence in women. The findings are a critical resource for policy development and practice. Based on the limitations and implications, future research could be undertaken building on the results of this study using a probability sampling method and applying a qualitative inquiry to support quantitative assessment. This will provide a comprehensive picture of the problem and allow extrapolation of the findings to the community.

CONCLUSION

The extent of violence against women is a barometer of social health. Death is, by far, the most extreme outcome of violence. However, the magnitude of gender-based violence is often not understood due to a lack of contextual data on death or underreporting of the acts of violence. Biases in recognizing underlying gender-based violence in suicidal and accidental deaths act as a barrier to the investigation and in-depth documentation of these cases. Accurate, systematic, and purposeful data are crucial to develop strategies to combat gender-based violence-related deaths. Data are critical to understanding the magnitude of deaths due to gender-based violence; a focus on data collection remains the mainstay of evidence-based decision-making. Thus, more efforts are required to improve the quality of death reporting to generate reliable estimates for gender-based violence.

In summary, an efficient and effective system of collecting relevant and disaggregated data on gender-based violence is fundamental to furthering strategies and responses for action. A strategy is needed to overcome the gaps in data coverage. More coordination between bodies involved in reporting and data collection could pave the way for systematic data linkage that would be more useful for policy and practice. Laying institutional data in a comprehensive context and seeking to triangulate with additional data sources (qualitative inquiry) before identifying and communicating policy options will be critical to advancing response.

RECOMMENDATIONS

Increased efforts in areas such as prevention, criminal justice responses, and data collection systems are required to enable a comprehensive response that will help prevent and eradicate gender-related killings of women and girls. Based on the study findings, we recommend the following-

1. **At the institutional level -**

i. **Strengthening data collection, and analysis (Process)**

- This should include the–

- **Establishment of a structured data collection system/process** at the autopsy centres and in police records that would enable routine recording and reporting of indicators related to gender-based violence from autopsies conducted in women of all ages, including non-binary gender.

The process should include guidance on when, how, and from whom the information should be collected and a pre-developed data collection tool for capturing key indicators. It should identify what data should be collected, analyzed, and reported and outline operational definitions and data management processes. The autopsy report should include variables to identify within the subset of deaths due to unnatural causes, deaths contributed by gender-based violence. The data should also capture socio-demographic details of both the victim and perpetrator.

As recommended by UNODC, The Statistical Framework for Measuring the Gender-related Killing of Women and Girls (also referred to as “femicide/feminicide”) prepared by the United Nations Office on Drugs and Crime and the United Nations Entity for Gender Equality and the

Empowerment of Women and endorsed by the United Nations Statistical Commission in 2022 identifies main data that should be collected for providing information on victims, perpetrators and state response to gender-related killings of women and girls (femicide/feminicide).

- **Development of a database** (line list of victims that died of unnatural causes) disaggregated by sex that would enable distillation of information for analysis.

We recommend that data of all victims who died of unnatural causes are routinely collected, digitized, and analyzed to identify the nature of the injury, context, socio-demographic factors associated with their death, and perpetrator traits. This would allow for a comparative analysis of gender-based violence across the sexes. The usefulness of the database would be substantially augmented if data are updated on an ongoing basis in accordance with changes in the charges during the investigation and judicial procedures and court outcomes.

The data thus collected will provide a comprehensive picture of the burden by counting deaths due to gender-based violence. It will enable comparison of trends over time and contribute to an evidence base that would help inform policy decisions.

ii. Strengthening capabilities for ethical data collection (People)

This should entail the following–

- Building capabilities of relevant personnel (health and police) and first-line responders to identify, elicit and record sensitive information regarding gender-based violence while adhering to ethical measures in data collection, including confidentiality.
- Enhancing the skills of relevant medical and allied personnel to process, interpret and use data to inform their practice. It should include training on data quality, data triangulation, and data confidentiality for those responsible for processing and managing data.

2. At the systemic level-

I. Establishment of a systemic data coordination mechanism for data triangulation and validation

This should include the –

- **Institution of a mechanism that allows regular engagement with sector-specific personnel** directly responsible for interacting with perpetrators (e.g., police). The coordination and triangulation of data from police records will help bridge the information gap on the victims' perpetrators, the extent of perpetrator accountability, prior conviction records, and the record of the first information report (FIR) filed by the victim in the past. The exchange of such information must be guided by an agreement of shared confidentiality and solely be used to generate more granular data for informing decisions.

- **Establishment of a technical review committee** comprising subject-matter experts to review data on deaths suspected to be due to gender-based violence. It will help validate the count of GBV deaths by examining the association between death and violence faced by the victim, thereby eliminating over, or underreporting, thus producing accurate statistics vis-à-vis gender-based violence.

ii. Engagement in data communication

We recommend that data producers engage in data communication with data users before and after the production of statistics. It will help to bridge the gap between data production and data use. It would mean forging linkages and sharing data with policy and decision-makers in departments of Women and Child Development (WCD), health, and police. The data should also be shared with civil society and the community at large to create awareness regarding the magnitude of the problem and to invoke an appropriate collective response to address gender-based violence.

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Source: Painting by Tom Fedro

ANNEXURE

Annexure I

TWG member List

Name	Designation
Dr Harish Pathak	Dean (Academics), KEM Hospital and Head of Dept, FMT
Ms Sharon Kim Gibbons	Vice President, Public Health Programs, Vital Strategies
Dr Ruxana Jina	Director, Data Impact Program, Vital Strategies
Dr Nidhi Chaudhary	Principal Technical Advisor, Data Impact Program, Vital Strategies
Dr Arpita Paul	Senior Manager, Data Impact Program, Vital Strategies
Ms Anushka Mangharam	Gender Equity Technical Advisor, Vital Strategies
Ms Shivangi Deshwal	Women Studies, Maryland University, NY
Ms Avsharan Kaur	Research Consultant, KEM Hospital
Dr Hemlata Pandey	Associate Professor, KEM Hospital
Dr Vikrant Waghmare	Associate Professor, KEM Hospital
Dr Amrita Vijayan	Jr. Resident, KEM Hospital

Annexure II - Data Collection Tool

Indicators	Detail Information	Indicators	Detail Information
1.Case No	Case No:	6.Injury/Death:	External Injury: Yes/No
	Date:		If yes. Head Injury/Multiple Injury/ Burns/Ligature Marks
	PM No.		Internal Injury: Yes/No
	ADR No.		If yes: Trauma/ Fracture/ acute toxicity
	Indoor No.		Nature of Injury: Burns/Stab/Firearm/Incised/Blunt Trauma/Poison/Asphyxia/Fall/ Hit
	Police Station:		Category
2.Victim Details:	Age of Victim:0–14 /15–29 / 30–44 / 45–59 / 60+ / Not known	7.Treatment	Date of onset of treatment:
	Sex of Victim: M/F/ TG/Unknown		Time elapsed between incident & onset of treatment:
	Educational Status: Illiterate/Primary/Secondary/Higher Secondary/ 10 + 2 (Diploma)/ Graduate/ PG/ Professional/ NA		Survival time after incident: days
	Marital Status:		Duration of Hospital stay
	Years since marriage:	8.Death reporting	Date of Death:
	Love marriage / Arranged marriage / Live-In Relationship/Not applicable		Time of Death:
	Pregnancy Status:		Time since death:
	Number of Children:		Cause of Death:
	Occupation: Unemployed (housewife)/ Unskilled/ Semi-skilled/ semi-profession/ Profession / NA		Manner of Death: Natural/ Suicidal/ Accidental/ Homicidal
3.History of Victim:	Disability, if any: Yes / No	9.Other relevant details, If available:	Others:
	If yes, mention detail:		Reasons
	Other Medical condition/ Co- morbidities:		any history:
	History of Substance Abuse: Yes/No;		% of Total Surface Burn Area
	If yes, mention:	10.Violence Markers	Cruelty by - Husband / Family
	Previous record of physical, sexual, or psychological violence/harassment: Yes/No		Case of GBV
	If yes, mention:		Suspicious GBV case
4.Family Type:	Nuclear / Joint / Others		Not Applicable
	Family Income: occupation of family		No reason given
	Socio - Economic status: I/ II/ III/ IV/ V	11.Detail of Accused/ Perpetrator:	Age of Accused (yrs): 0–14 /15–29 / 30–44 / 45–59 / 60+ / Not known
	Residence: Rural/ Urban		Sex of Accused: M/F/ TG/Unknown
	Place: Independent House/ Flat/ Chawl/ Hut/ Shelter Home/ Homeless/ Other		Relation of accused with victim: Husband/ In Laws/ Parent/ Sibling/ Relatives/ Neighbours/ Child/ Friend/ Partner/ Guardian/ Caretaker/acquaintance/ Stranger/ unknown
5.Incident reporting:	Date of incident:		H/o of substance use- Alcohol/tobacco/illicit drugs/other/not specified/not known
	Time of incident: i) Day/ Night, ii) Weekdays/ Weekend, mention		
	Location of Incident: Home/ Road /Railway/other		
	Time of death reporting to police:		

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