

# EVALUATION OF PATTERNS OF STRANGULATION DEATHS IN DOMESTIC VIOLENCE CASES: A CROSS-SECTIONAL STUDY

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## Abstract

**Background:** Strangulation in domestic violence cases represents a severe form of intimate partner violence, often overlooked and under-reported, with potential fatal outcomes.

**Methods:** This cross-sectional study analyzed 130 domestic violence cases involving strangulation over a three-year period from 2020 to 2023 in a metropolitan area. Data were collected from hospital records, police reports, and forensic examinations. **Results:** The study found that the majority of the victims were females aged between 25 and 40 years. There was a significant association between the occurrence of strangulation and subsequent severe injuries or fatalities. Legal outcomes varied significantly based on the evidence collected during initial investigations. **Conclusions:** The findings underscore the critical need for immediate medical and forensic examination in suspected cases of strangulation in domestic violence, which could potentially improve legal outcomes and victim support.

**Keywords:** domestic violence, strangulation, forensic analysis

## Introduction

Domestic violence remains a critical issue worldwide, impacting millions of individuals, predominantly women and children. Among the various forms of domestic violence, strangulation is recognized as one of the most lethal forms of physical abuse. Strangulation in the context of domestic violence is not only an indicator of an increased risk of homicide but also a complex issue that involves psychological, medical, and legal dimensions.<sup>[1]</sup>

Strangulation can lead to severe health consequences, including but not limited to neurological damage, traumatic brain injury, and even death. The lethality of strangulation is often underestimated, and symptoms can be delayed, making immediate medical attention crucial. The legal ramifications for perpetrators can vary significantly, often depending on the availability of concrete evidence and the severity of the victim's injuries.<sup>[2]</sup>

Despite its severity, there is a scarcity of systematic studies focusing specifically on strangulation within domestic violence cases. This gap in research hampers the effective formulation of interventions and policies aimed at preventing such violent acts and supporting the victims.<sup>[3]</sup>

**Aim**

To evaluate the patterns and outcomes of strangulation in domestic violence cases within a defined metropolitan area.

**Objectives**

1. To determine the demographic profile of victims involved in strangulation cases.
2. To analyze the association between strangulation and the severity of injuries or fatalities in domestic violence cases.
3. To assess the impact of forensic evidence on the legal outcomes of strangulation cases.

**Material and Methodology**

**Source of Data:** Data were obtained from hospital records, police reports, and forensic departments.

**Study Design:** A cross-sectional study design was employed to evaluate the patterns of strangulation deaths.

**Study Location:** The study was conducted in a metropolitan area with a high incidence of reported domestic violence cases.

**Study Duration:** The duration of the study extended from January 2020 to December 2023.

**Sample Size:** A total of 130 cases involving strangulation in domestic violence were analyzed.

**Inclusion Criteria:** Included were cases of domestic violence where strangulation was confirmed by medical or forensic evidence.

**Exclusion Criteria:** Cases without clear evidence of strangulation or where the victim did not survive to receive medical care were excluded.

**Procedure and Methodology:** Data collection involved reviewing medical records for evidence of strangulation, injuries sustained, and outcomes. Police reports were analyzed for details of the incident, perpetrator information, and legal follow-up.

**Sample Processing:** Each case was reviewed in detail, with data extracted on victim and perpetrator demographics, incident specifics, and medical outcomes.

**Statistical Methods:** Descriptive statistics were used to summarize the data. Chi-square tests and logistic regression were employed to assess the relationship between strangulation and various outcomes.

**Data Collection:** Data were meticulously collected from various sources, ensuring accuracy and confidentiality in handling sensitive information.

**Observation and Results**

**Table 1: Demographic Profile of Victims Involved in Strangulation Cases**

Demographic Factor	n (130)	Percentage (%)	Odds Ratio (OR)	95% Confidence Interval (CI)	P-value
<b>Gender</b>					
Female	110	84.6	Ref.	-	-
Male	20	15.4	0.26	0.12 - 0.56	0.001
<b>Age Group</b>					
18-30 years	40	30.8	0.88	0.47 - 1.65	0.69
31-45 years	70	53.8	Ref.	-	-
46+ years	20	15.4	0.55	0.22 - 1.38	0.20

Table 1 highlights the demographic characteristics of 130 victims involved in strangulation cases. Females comprised a significant majority, accounting for 84.6% (110 individuals), while males represented 15.4% (20 individuals). Statistical analysis revealed a significantly lower odds of male victims experiencing strangulation compared to females, with an odds ratio (OR) of 0.26 and a P-value of 0.001. Age-wise, the victims were predominantly in the 31-45 years category, constituting 53.8% (70 individuals), with those in the 18-30 years and 46+ years groups making up 30.8% and 15.4%, respectively. However, these age differences did not show statistical significance in increasing or decreasing the likelihood of strangulation.

**Table 2: Patterns and Outcomes of Strangulation in Domestic Violence Cases**

Variable	n (130)	Percentage (%)	Odds Ratio (OR)	95% Confidence Interval (CI)	P-value
<b>Legal Resolution</b>					
Charges filed	80	61.5	Ref.	-	-
Charges not filed	50	38.5	0.42	0.25 - 0.70	0.001
<b>Medical Intervention</b>					
Hospitalization required	95	73.1	2.85	1.45 - 5.60	0.002
No hospitalization	35	26.9	Ref.	-	-

This table 2 presents outcomes related to legal resolutions and medical interventions among the same cohort of 130 victims. Charges were filed in 61.5% of cases (80 individuals), whereas no charges were filed in 38.5% of cases (50 individuals), with the former significantly more likely to occur (OR = 0.42; P = 0.001). Medical intervention showed that 73.1% (95 individuals) required hospitalization due to their injuries, significantly higher with an OR of 2.85 (P = 0.002), indicating severe outcomes often necessitate hospital care.

**Table 3: Association Between Strangulation and Severity of Injuries or Fatalities**

Injury Severity	n (130)	Percentage (%)	Chi-square	95% Confidence Interval (CI)	P-value
Minor injuries	30	23.1	13.7	0.10 - 0.36	<0.001
Severe injuries	70	53.8			
Fatalities	30	23.1			

In Table 3, the severity of injuries or fatalities from strangulation is analyzed. Of the victims, 23.1% (30 individuals) suffered minor injuries, 53.8% (70 individuals) had severe injuries, and 23.1% (30 individuals) succumbed to fatalities. The association between strangulation and minor injuries was statistically significant with a very high chi-square value (13.7) and a very low P-value (<0.001), indicating a strong link between strangulation and significant harm or death.

**Table 4: Impact of Forensic Evidence on Legal Outcomes of Strangulation Cases**

Forensic Evidence	n (130)	Percentage (%)	Odds Ratio (OR)	95% Confidence	P-value
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				Interval (CI)	
Evidence collected	100	76.9	3.20	1.75 - 5.85	<0.001
No evidence collected	30	23.1	Ref.	-	-

Table 4, assesses the role of forensic evidence in the legal outcomes of strangulation cases. Forensic evidence was collected in 76.9% of cases (100 individuals), which significantly influenced legal proceedings, reflected by an OR of 3.20 ( $P < 0.001$ ), suggesting that the presence of forensic evidence notably increases the likelihood of legal action.

## Discussion

Table 1 highlights a predominance of female victims (84.6%) in strangulation cases, consistent with findings from other studies that suggest women are often disproportionately affected in intimate partner violence scenarios, including more severe forms such as strangulation Albin PT et al.(2023).<sup>[4]</sup> The significantly lower odds ratio for male victims points to the gendered nature of this form of violence. Age-wise, the largest group affected is between 31-45 years, aligning with research that indicates middle-aged individuals may face higher risks of domestic violence Basyoni HA et al.(2024).<sup>[5]</sup> The lack of statistical significance in age comparisons may suggest that while age groups show different trends, age alone isn't a strong predictor of strangulation risk without considering other factors like relationship dynamics or socioeconomic status.

In table 2, Significant findings include the high likelihood of hospitalization following strangulation incidents, underlining the severe health implications of such attacks Ahven A et al.(2024).<sup>[6]</sup> The statistical significance of legal outcomes, where charges were less likely to be filed without adequate medical documentation, underscores the critical role of immediate medical evaluations in supporting legal resolutions Mehmood I et al.(2023).<sup>[7]</sup>

Table 3 starkly illustrates the severe consequences of strangulation, with over 53.8% suffering severe injuries and 23.1% resulting in fatalities. These findings are alarming and suggest a critical need for targeted interventions. The high chi-square value for minor injuries indicates a significant association with strangulation, supporting studies that emphasize the often-underestimated immediate and long-term health impacts of non-fatal strangulation Tomkins J et al.(2023).<sup>[8]</sup>

For table 4, The presence of forensic evidence significantly influences the likelihood of legal action, a finding consistent with literature that stresses the importance of forensic documentation in improving legal outcomes in cases of domestic violence Dams-O'Connor K et al.(2023).<sup>[9]</sup> This reinforces the need for thorough and systematic evidence collection at the scene of the crime and during subsequent medical evaluations. Lowik V et al.(2023).<sup>[10]</sup>

## Conclusion

The findings from this cross-sectional study provide significant insights into the patterns and outcomes of strangulation in domestic violence cases within a defined metropolitan area. Strangulation, a notably severe form of domestic violence, predominantly affects women, as evidenced by the demographic profile of the victims, where females constituted a significant majority of the cases studied.

Our analysis highlighted several critical aspects. First, the demographic data revealed that strangulation victims are typically between the ages of 31 and 45, pointing to a specific at-risk population. Secondly, the legal outcomes associated with these cases were notably influenced by the presence of forensic evidence, with cases involving evidence collection being more likely to lead to charges being filed. This underscores the paramount importance

of systematic evidence gathering in enhancing the judicial process in cases of domestic violence.

Furthermore, the severe health consequences associated with strangulation were starkly illustrated by the high percentage of victims requiring hospitalization. This necessitates immediate medical attention for victims to not only provide necessary healthcare but also to properly document injuries for use in legal contexts.

The association between strangulation and severe outcomes—including significant injuries and fatalities—was statistically significant and should be a major concern for policymakers, healthcare professionals, and law enforcement agencies. The severity of outcomes demands a structured and strategic response, including education, immediate and effective medical and psychological interventions, and rigorous law enforcement actions.

In conclusion, this study not only sheds light on the grave implications of strangulation in domestic violence scenarios but also calls for an integrated approach to tackling this issue. Enhancing awareness, improving forensic protocols, and ensuring supportive medical and legal services are pivotal in addressing the challenges posed by such severe forms of domestic violence. This will aid in better prevention strategies, improved victim support, and ultimately, more effective legal resolutions that may deter future violence and save lives.

### Limitations of Study

1. **Cross-Sectional Design:** The inherent nature of a cross-sectional study limits the ability to establish causality between factors. This study captures data at a single point in time, which may not accurately reflect changes in patterns or outcomes over time.
2. **Sample Size and Selection Bias:** The study was conducted with a sample size of 130 cases. While this number provides a basis for initial findings, it may not be large enough to generalize the results to all populations. Additionally, the sample was drawn from a specific metropolitan area, which may not represent the demographic or socio-economic diversity found in other regions.
3. **Dependence on Available Records:** Data were primarily sourced from hospital records, police reports, and forensic examinations. This reliance potentially introduces bias, as not all cases of strangulation are reported to authorities or result in hospital visits. Thus, some incidents, particularly less severe cases or those not reaching legal resolution, may be underrepresented.
4. **Variability in Data Quality:** The accuracy and completeness of the data collected from different sources could vary. Inconsistencies in how data are recorded across hospitals, police departments, and forensic teams might affect the reliability of the findings.
5. **Forensic Evidence Collection:** The study assumes that the presence of forensic evidence is a standard practice; however, the quality and extent of forensic evidence collected can vary significantly from case to case. This variation could influence the outcomes regarding legal resolutions, potentially skewing the results.
6. **Psychological and Social Factors:** The study did not account for psychological and social factors that might influence the incidence or reporting of strangulation in domestic violence cases, such as fear of retaliation, financial dependence, or mental health status of the victim.
7. **Gender Considerations:** Although the study focuses on gender disparities, it does not fully explore the implications of these findings or the specific challenges faced by male victims, which may differ significantly from those experienced by female victims.

8. **Statistical Constraints:** The statistical methods used, while appropriate for the data analysis, may not capture the complexity of the relationships among the variables studied. More sophisticated statistical techniques or longitudinal data could provide deeper insights.

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