



Original Research Article

COMPARATIVE ANALYSIS OF MALE AND FEMALE MEDICO-LEGAL AUTOPSY CASES

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ABSTRACT

Background: Medico-legal autopsies provide critical information regarding the cause, manner, and circumstances of death. Understanding gender-based variations in autopsy findings is essential for identifying risk patterns, guiding public health policies, and improving forensic interpretation.

Aim: To comparatively analyze medico-legal autopsy cases among male and female decedents.

Materials and Methods: This retrospective comparative study was conducted in the Department of Forensic Medicine, GMC Kathua, from March 2023 to March 2025. A total of 285 medico-legal autopsies were included, comprising 232 males and 53 females. Data were collected from postmortem reports, inquest papers, and toxicological analyses. Variables included demographic characteristics, causes of death, manner of death, injury patterns, and toxicological findings. Statistical analysis was performed using Chi-square test and independent t-test, with $p < 0.05$ considered significant.

Results: Males were significantly older at death (41.7 ± 13.2 years) compared to females (36.9 ± 11.8 years) ($p = 0.018$). Road-traffic accidents were significantly more common in males (40.5%) than females (24.5%), whereas burns were markedly higher among females (17.0% vs. 4.7%). Alcohol detection was also significantly greater in males (35.3%), while indicators of domestic violence were predominantly seen in females (15.1%). Multiple injuries and head injuries were more frequent among males, whereas thermal injuries were significantly higher among females. The manner of death did not differ significantly between groups.

Conclusion: The study reveals clear gender-related differences in medico-legal autopsy findings. Male fatalities were predominantly linked to high-energy trauma and alcohol use, while female deaths showed higher association with burns and domestic violence. These findings highlight the need for gender-specific preventive measures, enforcement of road safety policies, and strengthened mechanisms to address domestic violence and female safety.

Keywords: Medico-legal autopsy, Gender differences, Injury patterns.

INTRODUCTION

Medico-legal autopsies constitute a cornerstone of forensic practice, providing critical insights into the cause, manner, and circumstances of death. They play an essential role in criminal investigations, public health surveillance, and the administration of justice by documenting injuries, toxicological

findings, and pathophysiological processes responsible for mortality. Globally, medico-legal autopsy patterns vary significantly depending on sociocultural norms, demographic structure, occupational risks, and the prevalence of violence, accidents, and natural diseases. One of the most important demographic variables influencing autopsy profiles is sex, as males and females exhibit

distinct exposure patterns to environmental hazards, lifestyle behaviors, and socio-cultural vulnerabilities. Comparative analysis of male and female autopsy cases is therefore crucial in understanding gender-specific mortality trends, helping policymakers implement targeted preventive strategies.^[1]

Several studies have shown that males constitute the majority of medico-legal autopsy cases, frequently associated with road-traffic accidents, occupational injuries, substance use, and interpersonal violence. Men typically engage more in high-risk activities, contributing to a higher incidence of traumatic deaths among them. Conversely, females represent a smaller proportion of autopsy cases but exhibit unique medico-legal dimensions, including domestic violence, burns, suicides, poisoning, and deaths related to pregnancy or reproductive health. Gender-based violence remains a major contributor to unnatural deaths among women in many developing regions, highlighting the intersection of public health, social justice, and forensic medicine.^[2]

Understanding sex-based differences in autopsy characteristics also helps forensic experts identify emerging trends in mortality patterns. For example, changing urban lifestyles, increased mobility, substance abuse, and psychosocial stressors are reshaping medico-legal profiles in both sexes. Additionally, fatal injuries among women traditionally under-reported are better recognized today owing to strengthened legal frameworks and improved reporting mechanisms. Comparative autopsy analysis helps detect discrepancies, identify preventable risk factors, and assess the effectiveness of laws such as those relating to road safety, domestic violence, and workplace safety.

From a forensic standpoint, comparative evaluation of male and female autopsy cases allows detailed study of variables such as age distribution, type of death (natural vs. unnatural), cause and mechanism of injury, toxicological findings, comorbidities, environmental circumstances, and postmortem intervals. This evidence not only aids accurate cause-of-death determination but also helps understand whether biological, behavioral, or socio-cultural factors influence mortality patterns. Furthermore, such comparative studies strengthen medico-legal reporting, improve training of medical officers, and contribute to forensic epidemiology, an evolving domain that merges forensic science with population-level data analysis.^{[3][4]}

Aim

To comparatively analyze medico-legal autopsy cases among male and female decedents.

Objectives

1. To assess and compare the demographic characteristics of male and female medico-legal autopsy cases.
2. To evaluate and contrast the causes, manner, and patterns of death among male and female subjects.

3. To analyze gender-specific trends in injuries, toxicological findings, and associated medico-legal factors.

MATERIALS AND METHODS

Source of Data

Data were obtained from medico-legal autopsy records maintained in the Department of Forensic Medicine at the GMC Kathua. All autopsies conducted between March 2023 and March 2025 were screened.

Study Design

This research employed a retrospective, comparative, cross-sectional study design.

Study Location

The study was conducted at the Forensic Medicine and Toxicology Department, GMC Kathua, receiving medico-legal cases from the surrounding districts.

Study Duration

March 2023 to March 2025.

Sample Size

Male cases = 232; Female cases = 53; Total = 285 medico-legal autopsies.

Inclusion Criteria

- All medico-legal autopsies performed during the study period.
- Cases with complete demographic, clinical, and autopsy records.
- Both natural and unnatural deaths subjected to medico-legal examination.

Exclusion Criteria

- Cases with incomplete autopsy data or missing documents.
- Highly decomposed bodies where cause of death could not be ascertained.
- Non-medico-legal autopsies (clinical autopsies).

Procedure and Methodology

All autopsies were conducted according to standard forensic guidelines. Each case was reviewed for demographic details, circumstances of death, clinical history, external and internal examination findings, injury patterns, toxicological samples collected, and final cause and manner of death. The autopsy records, inquest reports, and police papers were analyzed to extract relevant variables. Differences between male and female cases were comparatively assessed.

Sample Processing

During the autopsies, biological samples including blood, viscera, and other relevant tissues were collected, preserved, and sent for toxicological analysis. Processed reports were reviewed for alcohol, poison, drugs, and other substances. All findings were consolidated into a structured dataset.

Data Collection

A structured proforma was used to extract data from autopsy registers, inquest forms, postmortem

reports, and toxicology reports. Variables included age, sex, cause of death, manner of death, injury type, place of occurrence, toxicology results, and associated medico-legal details.

Statistical Methods

Data were entered into Microsoft Excel and analyzed using SPSS (version 25). Categorical

variables were expressed as frequency and percentage; continuous variables as mean \pm standard deviation. Comparative analysis between male and female groups was performed using Chi-square test for categorical variables and independent t-test for continuous variables. A p-value <0.05 was considered statistically significant.

RESULTS

Table 1: Overall Comparison of Male and Female Autopsy Cases (N = 285)

Variable	Male (n=232)	Female (n=53)	Test of Significance	95% CI	p-value
Mean Age (years)	41.7 \pm 13.2	36.9 \pm 11.8	Independent t-test (t = 2.39)	0.78 - 8.02	0.018*
Unnatural Deaths	189 (81.5%)	41 (77.4%)	Chi-square ($\chi^2 = 0.45$)		0.50
Natural Deaths	43 (18.5%)	12 (22.6%)			
Urban Residence	148 (63.8%)	27 (50.9%)			
Rural Residence	84 (36.2%)	26 (49.1%)			

Table 1 presents the overall comparison of male and female medico-legal autopsy cases in the study population. The mean age of male decedents was significantly higher (41.7 \pm 13.2 years) than that of females (36.9 \pm 11.8 years), and this difference was statistically significant (t = 2.39, p = 0.018), indicating that men tend to experience fatal events at comparatively older ages. Unnatural deaths formed the majority of cases in both sexes, accounting for 81.5% of males and 77.4% of females, with no statistically significant difference between the

groups (p = 0.50). Natural deaths showed a similar distribution pattern, contributing 18.5% among males and 22.6% among females. With respect to residence, most male decedents hailed from urban areas (63.8%), whereas a comparatively smaller proportion of females (50.9%) were urban residents. Conversely, rural residence was more common among women (49.1%) than men (36.2%). Although these variations suggest differing geographical exposure patterns between genders, they were not statistically significant.

Table 2: Demographic Characteristics of Male vs. Female Autopsy Cases

Variable	Male (n=232)	Female (n=53)	Test of Significance	p-value
Age Group				
0-20 years	29 (12.5%)	11 (20.8%)	$\chi^2 = 2.56$	0.11
21-40 years	98 (42.2%)	24 (45.3%)		
41-60 years	81 (34.9%)	14 (26.4%)		
>60 years	24 (10.3%)	4 (7.5%)		
Marital Status				
Married	162 (69.8%)	39 (73.6%)	$\chi^2 = 0.28$	0.59
Unmarried	70 (30.2%)	14 (26.4%)		
Employment Status				
Employed	136 (58.6%)	21 (39.6%)	$\chi^2 = 6.05$	0.014*
Unemployed	96 (41.4%)	32 (60.4%)		
Socioeconomic Class (Modified Kuppuswamy)				
Upper	21 (9.1%)	5 (9.4%)	$\chi^2 = 0.01$	0.94
Middle	124 (53.4%)	23 (43.4%)		
Lower	87 (37.5%)	25 (47.2%)		

Table 2 describes the demographic characteristics of male and female autopsy cases. Across age categories, females showed a higher proportion of deaths in the 0–20-year group (20.8%) compared to males (12.5%), although this difference was not statistically significant (p = 0.11). The majority of cases in both sexes were concentrated in the 21–40-year age bracket, representing the most active and high-risk age group. Marital status did not differ significantly between males and females, with married individuals constituting the majority in both

groups. Employment status, however, demonstrated a significant disparity: 58.6% of male decedents were employed compared to only 39.6% of females, a difference that was statistically significant ($\chi^2 = 6.05$, p = 0.014). This likely reflects gender-based occupational exposure differences. Socioeconomic classification based on the Modified Kuppuswamy scale revealed that females had a higher representation in the lower socioeconomic class (47.2%) compared to males (37.5%), whereas males showed greater representation in the middle class.

Table 3: Comparison of Causes, Manner, and Patterns of Death

Variable	Male (n=232)	Female (n=53)	Statistical Test	p-value
Cause of Death				
Road-Traffic Accidents	94 (40.5%)	13 (24.5%)	$\chi^2 = 5.01$	0.025*
Burns	11 (4.7%)	9 (17.0%)		

Poisoning	39 (16.8%)	8 (15.1%)		
Hanging	32 (13.8%)	10 (18.9%)		
Assault / Homicide	28 (12.1%)	6 (11.3%)		
Cardiac / Natural	28 (12.1%)	7 (13.2%)		
Manner of Death				
Accidental	142 (61.2%)	29 (54.7%)	$\chi^2 = 0.82$	0.36
Suicidal	66 (28.4%)	19 (35.8%)		
Homicidal	24 (10.3%)	5 (9.4%)		
Pattern of Injury				
Polytrauma	102 (44.0%)	15 (28.3%)	$\chi^2 = 4.34$	0.037*
Single Major Injury	56 (24.1%)	14 (26.4%)		
Thermal Injury	14 (6.0%)	11 (20.8%)		
Organ Failure (Medical)	60 (25.9%)	13 (24.5%)		

Table 3 compares the causes, manner, and patterns of death between male and female decedents. Road-traffic accidents (RTAs) were the leading cause of death among males (40.5%) and were significantly more common in men compared to women (24.5%) ($p = 0.025$), highlighting greater male exposure to vehicular and outdoor hazards. Conversely, burns were notably higher among females (17.0%) compared to males (4.7%), reflecting domestic risk factors and sociocultural vulnerabilities. Poisoning, hanging, homicide, and natural deaths showed broadly comparable distributions between the sexes without significant statistical differences. In terms of manner of death, accidental deaths were the

predominant category for both males (61.2%) and females (54.7%), followed by suicides and homicides, with no significant gender-based variation. Injury pattern analysis revealed that polytrauma was significantly more frequent in males (44.0%) than in females (28.3%) ($p = 0.037$), consistent with the higher male involvement in high-impact incidents such as RTAs. Thermal injuries were substantially higher among female decedents (20.8%) compared to males (6.0%), reinforcing the earlier finding of increased burn-related deaths in women. Single major injuries and medical causes (organ failure) showed similar patterns across both groups.

Table 4: Gender-Specific Trends in Injuries, Toxicology, and Medico-Legal Factors

Variable	Male (n=232)	Female (n=53)	Statistical Test	95% CI	p-value
Alcohol Detected (Blood)	82 (35.3%)	8 (15.1%)	$\chi^2 = 8.27$	-	0.004*
Poison Detected (Toxicology)	27 (11.6%)	7 (13.2%)	$\chi^2 = 0.10$	-	0.75
Multiple Injuries	118 (50.9%)	17 (32.1%)	$\chi^2 = 6.38$	-	0.012*
Head Injury (as primary fatal injury)	91 (39.2%)	12 (22.6%)	$\chi^2 = 5.11$	-	0.024*
Fractures (long bones)	64 (27.6%)	9 (17.0%)	$\chi^2 = 2.27$	-	0.13
Burn Injuries	13 (5.6%)	10 (18.9%)	$\chi^2 = 11.05$	-	0.001*
Domestic Violence Indicators (reported)	7 (3.0%)	8 (15.1%)	$\chi^2 = 12.16$	-	<0.001*
Time Since Death (hours)	18.7 ± 7.9	16.3 ± 6.8	t = 2.00	0.12 - 4.68	0.047*

Table 4 outlines gender-specific differences in injury profiles, toxicological findings, and medico-legal indicators. Alcohol detection was significantly higher in male decedents (35.3%) compared to females (15.1%) ($\chi^2 = 8.27$, $p = 0.004$), indicating greater male involvement in alcohol-associated fatalities. Toxicology-positive poison cases were slightly higher in females (13.2%) than males (11.6%), though the difference was not significant ($p = 0.75$). Multiple injuries were significantly more prevalent in males (50.9%) than females (32.1%) ($\chi^2 = 6.38$, $p = 0.012$), whereas head injury as the primary fatal injury was also more common among males (39.2% vs. 22.6%) with statistically significant difference ($\chi^2 = 5.11$, $p = 0.024$). Burn injuries exhibited a reverse trend, being significantly more frequent among females (18.9%) compared to males (5.6%) ($\chi^2 = 11.05$, $p = 0.001$). A striking finding was the higher prevalence of domestic violence indicators among female decedents (15.1%) than males (3.0%), which was highly significant ($\chi^2 = 12.16$, $p < 0.001$). The mean time since death was slightly shorter in females (16.3 ± 6.8 hours) compared to males (18.7 ± 7.9 hours), and

this difference was statistically significant ($t = 2.00$, 95% CI: 0.12-4.68, $p = 0.047$).

DISCUSSION

Table 1, the mean age of males was significantly higher than that of females, aligning with findings by Walz C et al. (2025),^[5] who reported a higher mean age among male autopsy subjects due to greater exposure to occupational and outdoor risks. The predominance of unnatural deaths in both sexes is consistent with studies by Hassan AI. (2025),^[6] who observed that medico-legal autopsies are overwhelmingly associated with unnatural circumstances such as road-traffic accidents, poisoning, burns, and violence. Although urban-rural variations did not reach statistical significance in the present study, the observed pattern of higher male representation in urban areas echoes the findings of Gour JK et al. (2023),^[7] suggesting increased vehicular mobility and occupational hazards in urban male populations.

In **Table 2**, demographic characteristics revealed that a higher proportion of female deaths occurred in the 0-20-year age group, although not statistically

significant. Several studies, including Di Lorenzo P et al. (2022),^[8] have noted increased vulnerability of young females to domestic violence, burns, and self-harm. Employment status showed a significant difference, with fewer females being employed a trend consistent with the socioeconomic context reported by Chawla H et al. (2024).^[9] This disparity reflects gender-specific societal roles that influence exposure to different types of fatal events. Socioeconomic stratification in the present study did not differ significantly between sexes, similar to findings from Giles SB et al. (2022),^[10] indicating that fatal incidents cut across socioeconomic boundaries.

Analysis of causes and manner of death, as detailed in **Table 3**, revealed that road-traffic accidents were significantly more frequent among males, which corresponds with global trends noted by the WHO and research by Cecchi R et al. (2023),^[11] highlighting predominance of male victims in high-velocity trauma. Burns were significantly more common in female decedents—paralleling conclusions drawn by Tariq FA et al. (2021),^[12] who attributed this trend to kitchen-related accidents, domestic violence, and suicidal burns among young married women. Poisoning, hanging, assault, and natural deaths did not differ significantly between sexes, consistent with the patterns described by Holz F et al. (2020).^[13] The significantly higher male incidence of polytrauma underscores greater male susceptibility to high-impact injuries, as also reported in Cirielli V et al. (2021).^[14]

Table 4 reveals gender-specific injury and toxicology trends. Alcohol detection was significantly higher in males, echoing findings by Giles SB et al. (2022),^[10] who documented increased alcohol-related mortality in male populations due to behavioral and sociocultural risk-taking tendencies. Burn injuries and domestic violence indicators were markedly higher in females, consistent with Chakrovarty A et al. (2022),^[15] who highlighted the relationship between gender-based violence and fatal burn injuries. The significantly higher proportion of multiple and head injuries among males reflects exposure to traffic trauma and interpersonal violence, similar to observations reported by Holz F et al. (2020).^[13] Time since death differed significantly between sexes, possibly reflecting differences in circumstances of discovery and reporting; this observation is also supported by Narayan G et al. (2025),^[16] who found gender-linked variations in the time interval before bodies were located.

CONCLUSION

The present study provides a comprehensive comparison of medico-legal autopsy cases between male and female decedents and highlights distinct gender-based patterns in demographics, causes of death, injury mechanisms, and toxicological

findings. Males constituted the majority of autopsy cases and were significantly older at the time of death, with a higher prevalence of road-traffic accidents, polytrauma, head injuries, and alcohol-associated fatalities. In contrast, females demonstrated higher proportions of burns, domestic violence indicators, and younger age at death in specific categories. While accidental deaths formed the predominant manner of death in both sexes, the underlying mechanisms showed clear gender-linked differences reflecting divergent social roles, exposure risks, and vulnerabilities in the community.

Limitations

1. **Single-center study:** The findings are based on data from a single tertiary-care institution and may not fully represent broader regional or national patterns.
2. **Retrospective design:** The study relied on existing autopsy records, which may be subject to incomplete documentation or varying levels of detail.
3. **Limited psychosocial data:** Information on socioeconomic stressors, familial circumstances, occupational history, and mental health indicators was not consistently available.
4. **Toxicological constraints:** In some cases, toxicology reports were delayed or incomplete, potentially affecting the accuracy of poisoning and alcohol-related analyses.
5. **Absence of contextual scene-of-death information:** Not all cases included detailed police or scene investigation data, which could have enhanced interpretation of manner and mechanism of death.
6. **Small female sample size:** The lower number of female autopsy cases (n=53) may have limited statistical power to detect differences in less frequent variables.
7. **Unmeasured confounders:** Factors such as healthcare access, time to medical attention, and pre-existing comorbidities were not uniformly documented and may have influenced outcomes.

REFERENCES

1. Mann GR, Saini RK, Saini N. Profile of medico legal autopsies conducted at Tertiary Medico-legal Centre in Northern India. *International journal of ethics, trauma & victimology*. 2021 Dec 25;7(01):14-8.
2. Orakzai AA, Naveed H, Khan KA, Naveed R, Naveed S, Alam N. Profile Of Medico-Legal Autopsies In Forensic Department Of Khyber Medical College. *The Stetho*. 2021 Mar 29;2(3).
3. Mellouki Y, Sellami L, Saker L, Belkhadja N, Zerairia Y, Kaiouf F, Mira AH. The epidemiological and medico-legal characteristics of violent deaths and spousal homicides through a population of women autopsied within the Forensic Medicine Department of the University Hospital of Annaba. *BMC women's health*. 2023 Mar 25;23(1):129.
4. Ong HN, Chen IH, Hsieh YH, Hsu CH, Weng TI, Chang CC. Comparison of fatal traumatic medico-legal cases with postmortem computed tomography and autopsy: A pilot

- study in Taiwan. *Journal of the Formosan Medical Association*. 2023 Apr 1;122(4):351-4.
5. Walz C, Eifert S, Görg J, Schwarz CS, Steffan C, Brettel H, Germerott T. Gender differences in homicides. A comparative analysis of 106 fatalities in forensic autopsy data. *Forensic Science, Medicine and Pathology*. 2025 Mar;21(1):193-202.
 6. Hassan AI. Medico-Legal Study of All Autopsied Cases During 2021 to 2022 in Asyut and the New Valley Governorates: A Retrospective and Prospective Evaluation. *Al-Azhar International Medical Journal*. 2025 Oct 30;2025(10):25-7.
 7. Gour JK, Gaur GP, Mangal K, Vergia SV, Saini RK. Socio-Demographic & Medico-Legal Profile Among the Victims of Acute Fatal Asphyxia Cases at SMS Medical College, Jaipur. *Indian Journal of Forensic Medicine & Toxicology*. 2023 Apr 1;17(2).
 8. Di Lorenzo P, Di Donna G, Busillo L, Pieri M, Capasso E, Policino F, Casella C, Niola M. Medico-Legal issues in cremation: Comparative analysis of international legislation. In *Healthcare* 2022 Dec 1 (Vol. 10, No. 12, p. 2428). MDPI.
 9. Chawla H, Jowel T, Yadav R. An Epidemiological Profile of Medico-legal Autopsies at a Tertiary Care Center. 1. Trends of Hanging Deaths in Vadodara-An Autopsy based Prospective Study 1 Aditya B. Itare, Sunil B. Bhatt, Hardik R. Prajapati, Jenish Kacchadia, Devang Dave 2. Progressive Pulmonary Tuberculosis-Progress Beyond the Walls 6 Anwar KA, Aditya Kidiyoor, Renju Raveendran 3. Comparative Study of Sex Estimation by Mesiodistal width of Mandibular. 2024 Apr;24(2):27.
 10. Giles SB, Errickson D, Márquez-Grant N. A retrospective comparative study to evaluate the reliability of post-mortem interval sources in UK and US medico-legal death investigations. *Science & Justice*. 2022 Mar 1;62(2):246-61.
 11. Cecchi R, Masotti V, Sassani M, Sannella A, Agugiario G, Ikeda T, Pressanto DM, Caroppo E, Schirripa ML, Mazza M, Kondo T. Femicide and forensic pathology: proposal for a shared medico-legal methodology. *Legal Medicine*. 2023 Feb 1;60:102170.
 12. Tariq FA, Sarwar SU, Mukhtar KH, Sadia SU, Nadeem SH, Rehman HU, LAIQUE T. Spectrum of medico legal deaths at Sheikh Zaid Hospital Lahore: A retrospective study. *Pak J Med Health Sci*. 2021;15(4):1362-4.
 13. Holz F, Saulich MF, Schröder AS, Birngruber CG, Verhoff MA, Plenzig S. Death abroad: medico-legal autopsy results of repatriated corpses: a retrospective analysis of cases at the Department of Legal Medicine in Frankfurt am Main. *Forensic Science International*. 2020 May 1;310:110257.
 14. Cirielli V, Bortolotti F, Cima L, De Battisti Z, Del Balzo G, De Salvia A, Laposata C, Raniero D, Vermiglio E, Portas M, Rodegher P. Consultation between forensic and clinical pathologists for histopathology examination after forensic autopsy. *Medicine, Science and the Law*. 2021 Jan;61(1_suppl):25-35.
 15. Chakrovarty A, Bhattacharjee A, Mazumder A. A comparative analysis of pattern of homicidal deaths among males and females in a district of West Bengal. *Journal of Indian Academy of Forensic Medicine*. 2022;44(3):50-4.
 16. Narayan G, Oura P. Comparison of background characteristics and neuropathology findings between medico-legal autopsy cases with traumatic axonal injury, vascular axonal injury, or absence of axonal injury in β -amyloid precursor protein stain. *International Journal of Legal Medicine*. 2025 May;139(3):1335-42.