https://doi.org/10.3329/cbmj.v15i1.87619

Pattern of Homicide in a Tertiary Care Hospital in Bangladesh: An Autopsy-Based Study

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Abstract

Homicide represents a critical public health and legal challenge in Bangladesh, claiming numerous lives and reflecting underlying social tensions. A precise understanding of its patterns is crucial for informing violence prevention strategies and guiding effective policy and policing interventions. A cross-sectional study was conducted in the Department of Forensic Medicine & Toxicology of Cumilla Medical College, Cumilla, Bangladesh, between July 2024 and June 2025, to assess the patterns of homicidal deaths based on autopsy findings. We analyzed 197 purposively selected homicide cases from autopsy procedures. Data was analyzed using MS-Excel to generate descriptive statistics on victim demographics and injury patterns. Our data revealed that young males (75.6%), particularly in 21–40 years age group (62.4%) were the most common victims. Sharp weapon injuries were the predominant cause of death (47.2%), followed by firearms (24.4%). Most incidents occurred outdoors (51.8%) during night hours (39.6%) and were motivated by interpersonal disputes (41.1%). No significant association was found between the victim's age and the cause of death (p=0.961). To conclude, young males are the primary victims of homicide, predominantly from sharp weapon injuries in interpersonal disputes. Targeted interventions, including stricter weapon regulation and community conflict resolution programs, are urgently recommended to mitigate this public health burden.

CBMJ 2026 January: vol. 15 no. 01 P:121-126

Keywords: Autopsy, Bangladesh, Homicide, Injury pattern, Interpersonal disputes, Sharp weapon injuries

Introduction

Homicide, the intentional and unlawful killing of one human being by another, represents the most extreme form of interpersonal violence and a critical global public health challenge.[1] The World Health Organization (WHO) consistently highlights violence as a leading cause of death for specific age groups, with profound social, economic, and psychological repercussions for families and communities.[2]

Globally, the burden of homicide is not evenly distributed, exhibiting significant disparities across and within regions, influenced by a complex interplay of socioeconomic, cultural, and institutional factors.[3,4] The South Asian region, including Bangladesh, contends with a substantial burden of violent deaths. While the overall global homicide rate has seen fluctuations, certain areas experience persistently

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high rates, often linked to factors such as rapid urbanization, socioeconomic inequality, political instability, and the availability of weapons.[5,6] Accurate data on homicide is crucial for understanding its magnitude and formulating effective counter-strategies. However, in many low- and middle-income countries, official crime statistics can be subject to underreporting and misclassification.[7] This is where medicolegal autopsy-based studies become an indispensable source of objective, reliable, and scientific data, providing an unfiltered view of the patterns and trends of violent death that may not be fully captured elsewhere.[8,9] In Bangladesh, a densely populated country undergoing rapid development, interpersonal violence remains a pressing concern. Previous studies conducted in various parts of the country have shed light on specific aspects of homicide, indicating that young males are the most vulnerable demographic.[10] Common mechanisms identified include sharp weapons, blunt force trauma, and increasingly, firearm-related injuries.[11,12] These studies often point towards interpersonal conflicts, domestic disputes, and political violence as predominant motives.[10,13] However, the epidemiological landscape of violence is dynamic and can vary significantly by region due to local cultural norms, economic conditions, and law enforcement efficacy. There is a recognized gap in the literature regarding the specific patterns of homicide in other developed regions, such as the Cumilla district in Bangladesh. As a major hub with its unique socioeconomic profile, understanding the local pattern of homicide is essential for developing targeted prevention programs, optimizing resource allocation for law enforcement, and guiding public health policy. This study, therefore, aimed to bridge this knowledge gap by conducting a detailed, autopsy-based analysis of all homicidal deaths reported to the Cumilla Medical College over one year. The findings from this study will provide contemporary, region-specific data that can inform evidence-based interventions aimed at reducing the burden of homicide in this region of Bangladesh.

Methods

This cross-sectional study was conducted in the Department of Forensic Medicine & Toxicology of Cumilla Medical College, Cumilla, Bangladesh. The study population encompassed all individuals who underwent a medico-legal autopsy at this facility between July 2024 and June 2025, and for whom the final determination of the manner of death was homicide. The study included all cases where the autopsy examination provided clear and conclusive evidence that the death was a homicide. This included detailed documentation of the nature and extent of injuries, the cause of death, and corroborating evidence from the accompanying police inquest report. Only cases with a complete and accessible set of records were considered for inclusion. Cases were excluded from the final analysis if the autopsy reports or inquest documents were incomplete, missing, or contained significant inconsistencies. Furthermore, cases where the manner of death remained undetermined or was classified as accidental, suicidal, or natural after autopsy were also systematically excluded to maintain the focus solely on homicidal deaths.

Data collection was performed using a standardized, pre-tested data extraction form. Information was meticulously transcribed from the autopsy reports and inquest documents into the form. The collected variables included the victim's age, sex, occupation, date and location of the incident, types of weapons used, nature and site of injuries, cause of death, and any alleged motive mentioned in the records.

Data was then entered into MS-Excel for statistical compilation and analysis. Descriptive statistics were employed to analyze the data. The results were presented primarily as frequencies and percentages to describe the various patterns and characteristics of the homicidal deaths investigated during the study period. Chi-square test was applied to reach p-value (comparing between age groups and cause of death). A p-value <0.05 was considered statistically significant.

Ethical clearance was obtained from the Ethical Review Committee of Cumilla Medical College, Cumilla, Bangladesh.

Results

Analysis of 197 homicide cases revealed distinct demographic and injury patterns. The vast majority of victims were male, constituting 75.6% of all cases. A significant majority (62.4%) were young adults aged 21 to 40 years. Most victims were married (65.0%) and employed in sectors such as private service or skilled labor (34.0%), followed by unskilled labor (26.4%) (Table-I). The most frequent cause of death was sharp weapon injury, accounting for nearly half (47.2%) of all cases. Firearm injuries were the second leading cause (24.4%), followed by blunt force trauma (19.8%) (Table-II). The injury analysis showed that an overwhelming majority of victims (79.2%) sustained multiple wounds. The primary body region targeted was the thorax and abdomen, which were involved in 59.9% of cases, indicating a deliberate aim at vital areas (Table-III). Homicides occurred most frequently during the night hours (39.6%). Over half of all incidents (51.8%) took place in outdoor or public settings, while 36.5% occurred in domestic environments. Geographically, more cases were reported from urban areas (58.4%) compared to rural locales (41.6%) (Table-IV).

Table-I: Demographic characteristics of the study subjects (n=197)

Category	Frequency	Percentage
Age group (in years)		
20	28	14.2
21–40	123	62.4
41–60	39	19.8
60	7	3.6
Sex		
Male	149	76
Female	48	24
Marital status		
Married	128	65
Unmarried	69	35
Occupation		
Student/unemployed	37	18.8
Business	41	20.8
Professionals	67	34.0
Unskilled laborer	52	26.4

Table-II: Causes of death

Category	Frequency	Percentage
Sharp weapon injury	93	47.2
Firearm injury	48	24.4
Blunt force trauma	39	19.8
Strangulation	9	4.6
Others	8	4.1

Table-III: Pattern of injuries

Category	Frequency	Percentage
Number of injuries		
Single	41	20.8
Multiple (≥2)	156	79.2
Primary body region injured		
Head and neck	57	28.9
Thorax and abdomen	118	59.9
Limbs	22	11.2

Table-IV: Circumstantial and temporal distribution

Category	Frequency	Percentage
Time of incident		
Morning (06:01-12:00)	31	15.7
Noon (12:01-18:00)	52	26.4
Night (18:01-24:00)	78	39.6
Late Night (00:01-06:00)	36	18.3
Place of incident		
Indoor/Domestic	72	36.5
Outdoor/Public	102	51.8
Remote area	23	11.7
Residence		
Urban	115	58.4
Rural	82	41.6

Regarding circumstances, interpersonal disputes were the most common alleged motive, responsible for 41.1% of incidents. Robbery and theft were motives in 23.9% of cases. Regarding perpetrator, most were acquaintances (37.6%), followed by strangers (32%) and family members (19.3%) (Table-V). No significant association between the age group of the victim and the cause of death (p=0.961) indicating that the method of homicide was consistent across all adult age demographics in this cohort (Table-VI).

Table-V: Alleged motive and victim-perpetrator relationship

Category	Frequency	Percentage
Alleged motive		
Interpersonal dispute	81	41.1
Robbery/Theft	47	23.9
Domestic violence	36	18.3
Unknown	33	16.8
Relationship to perpetrator		
Acquaintance	74	37.6
Stranger	63	32.0
Family member	38	19.3
Unknown	22	11.2

Table-VI: Association between age group and cause of death

Cause of death	Age group (in years)				p-value
	≤20 (n=28)	21-40 (n=123)	41-60 (n=39)	>60 (n=7)	
Sharp weapon	12 (42.9%)	60 (48.8%)	18 (46.2%)	3 (42.9%)	0.961^{NS}
Firearm	8 (28.6%)	28 (22.8%)	10 (25.6%)	2 (28.6%)	
Blunt force	5 (17.9%)	26 (21.1%)	7 (17.9%)	1 (14.3%)	
Others	3 (10.7%)	9 (7.3%)	4 (10.3%)	1 (14.3%)	

Chi-square test was applied to reach the p-value; NS=not significant.

Discussion

This autopsy-based study provides a detailed analysis of the pattern of homicide in Cumilla region of Bangladesh, revealing findings that are both consistent with and divergent from previous national and international research. The predominant demographic of victims being young males (75.6%) aligns perfectly with a global consensus on homicide epidemiology, which consistently identifies young adult males as both the primary perpetrators and victims of lethal violence.[1,14] This trend is echoed across South Asia, including previous studies in Dhaka and Chittagong, and is often attributed to greater social mobility, engagement in high-risk occupations, and higher involvement in altercations.[13,15] The most striking finding of this study is the overwhelming predominance of sharp weapons as the instrument of death (47.2%), a pattern that distinguishes the region from areas where firearms are more prevalent. This high incidence mirrors studies from other parts of Bangladesh and reflects the easy availability and cultural commonality of

sharp instruments like machetes and knives in daily life.[11,16] Firearm-related deaths, though second (24.4%), were significantly lower than rates reported in many other countries but indicate a concerning and potential upward trend in the use of manufactured weapons in violent crime in Bangladesh, as suggested by recent media analyses.[11,17] The high percentage of multiple injuries (79.2%) and the targeting of the thorax and abdomen (59.9%) suggest intense and aggressive assaults with a clear intent to kill, moving beyond simple altercations.[18] The temporal pattern, with a peak incidence during night hours, correlates with reduced public vigilance and leisure times where interpersonal conflicts may escalate.[19] The higher frequency of homicides in urban areas (58.4%) contradicts some traditional assumptions and could be linked to urban crowding, socioeconomic disparities, and higher crime rates often associated with developing urban centers.[6,20] However, the significant proportion occurring in domestic settings (36.5%) underscores the home as a locus of severe violence, often related to intimate partner violence or familial disputes, a critical area for public health intervention.[21] The circumstantial analysis revealing interpersonal disputes as the primary motive (41.1%) is a common finding worldwide, highlighting how seemingly trivial conflicts can escalate into fatal outcomes in the absence of effective conflict resolution mechanisms.[22] The fact that perpetrators were most often acquaintances (37.6%) rather than strangers reinforces the understanding that homicide is frequently a crime of passion or proximity, occurring within existing social networks.[13,23] The lack of a statistically significant association between age group and cause of death (p=0.961) indicates a uniformity in the methods of violence across all adult age groups, suggesting that weapon choice is influenced more by availability and circumstances like victim-offender relationship than by the age of the victim or assailant.[24]

This study is limited by its single-center design and purposive sampling, which may affect generalizability (population across different regions of the country). Reliance on autopsy and inquest report also introduces potential for incomplete documentation of circumstantial variables and victim-offender relationships.

Conclusion

This study concludes that homicide in this region predominantly affects young adult males, with sharp weapons as the leading cause of death, often arising from interpersonal disputes in public settings. These findings highlight a critical public health issue requiring targeted interventions. We recommend implementing stricter regulations on weapon sales, initiating community-based conflict resolution programs, and enhancing urban policing strategies to effectively address and prevent such violent deaths. Implementation of stricter regulatory measures on the public carrying of sharp weapons is necessary. Moreover, developing targeted community awareness and conflict resolution programs for young adults should be in place. Strengthening urban policing and emergency response systems, particularly during night hours, to deter violence and improve public safety are also important.

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