CASES OF DEATH DUE TO FATAL STAB INJURIES REFERRED TO ZEINHOM MORGUE during 12 MONTHS IN EGYPT

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ABSTRACT

BACKGROUND: The number of deaths has sharply increased worldwide. It was noted to be one of the main causes of trauma in the world. This made the study of stab-related deaths of medical-legal significance, which would aid in the pursuit of criminal justice. **SUBJECTS & METHODS:** A cross-sectional study concerning demographic information and the findings of forensic examination was conducted on 116 cases of both sexes and various age groups, brought to Zeinhom Morgue within 12 months, with stab injuries as the primary cause of death. **RESULTS**: A statistically significant difference was found in the comparison between: the type of weapon and shape of injury, weapon type and the blade character, anatomical region affected and direction of injury, blade width and external wound length, and number of stabs regarding the cause of assault or sex of the victim. **CONCLUSION AND RECOMMENDATIONS**: There is a need to ensure proper limitation of ownership of sharp weapons, in addition to accurate documentation of stab wounds. The attendance of a forensic pathologist at the crime scene ensures appropriate management of stab cases and samples at the scene.

Keywords: Stab, autopsy, sharp weapon

INTRODUCTION

Trauma-induced damage to bodily tissue is referred to as an injury. Because sharp weapons are so readily available, crimes involving them are frequent**.** Wounds from sharp objects typically manifest as stab wounds or cuts **(Olding et al., 2019).**

The general characteristics of sharp object wounds include**:** The wound typically has a sharp angle and a consistent contour. The wounds will appear tight and form a straight line when they are linked. Tissue bridging does not exist. The area of the wound is not bruised. **(Salsabila, 2022).**

Among the most frequent injuries caused by sharp objects are incised and stab wounds. A stab wound which are incised wound where the length of injury on the surface is less than the depth of penetration into the body. A stab wound happens when a sharp object pierces the body. Such injuries can affect various areas, including the chest, abdomen, spine, neck, head, and extremities **(Petrus, 2021)**.

Direct causes of death for stab wounds: severe bleeding in the large blood vessels is the most frequent cause of death. A large blood artery arterial hemorrhage can cause severe bleeding that happens quickly, air embolism, and damage to vital organs (liver, heart, big blood vessels, etc.). Indirect cause deaths typically result from infection or sepsis **(Sitepu, 2022).** Fatalities from stab injuries are prevalent **(Zhao et al., 2021).**

Aim of the work

The current study aims to analyze stab deaths admitted to the Zeinhom morgue regarding victim demographic data, characteristics of the causative instrument, and Forensic examination findings throughout 12 months.

Methods

Study design and population:

This study was a prospective cross-sectional study, including all stab deaths, presented to the Zeinhom morgue during 12 months (116 cases)

All cases with stab-causing death, both sexes and all ages, presented to Zeinhom Morgue during the study period were included.

The cases that were excluded: Non-stab deaths. • Stab injuries with associated other fatal injuries. • Complicated injuries before death.

Toxicological screening was done for all cases

Examination of cases

1. ***Identification*** (Identity status, Age, Sex, residence, Registration at Zeinhom morgue data.

2. Postmortem general examination

a- Examination by X-ray using a C-Arm X-ray machine to determine the presence or absence of retained particle, site, and type of retained particle, and other clinical findings by X-ray related to stab injury.

b- Examination of clothes& findings on clothes, if present, and comparing them with the wound **(Figure 1).**

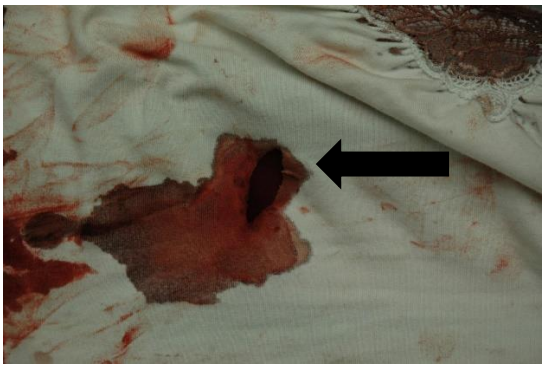

Figure 1: Cut & blood on the clothes opposite the stab injury (Zeinhom morgue).

3. <u>Stab injury examination</u>: number and site of the wound, Size of each wound (length, width) before and after approximation of the edges **(Figure 2)**, Direction of wounds, Edges and margins of the wound for any special character, Hospital management before death, and time passed till death., Bleeding (amount and type), Organ laceration and fractures, Other complications and associated injuries related to stab injury (type and site), Defensive wounds if present (site and type of injury).

Figure 2: Examination of a stab wound to the chest (Zeinhom morgue).

Examination of stab injury to the head

An incision was made behind both ears through it, peeling off the scalp from posterior to anterior, and then using a special chain skull was opened by partial separation of the skull cap, allowing examination of the brain and its meninges, and taking samples if indicated, then closure of the head by suturing the outer wound

of the scalp **(Figure 3a).**

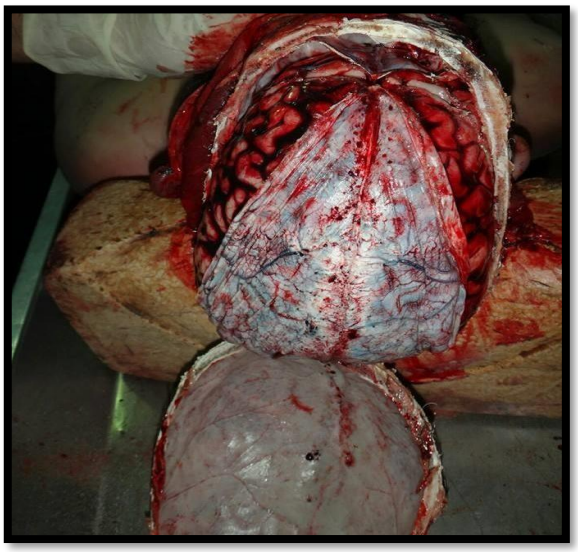

Figure 3a: Head opening for examination of a stab to the head (Zeinhom morgue)*(Eltokhy et al., 2024).*

Examination of stab injury to the trunk and limbs

If a stab injury occurs in any site in the body other than the head, the examination is done by a simple incision with a simple medical scalpel at the site of the stab wound **(Figure 3b,c).**

Then, complete examination by doing a midline incision from the neck to the symphysis pubis, allowing examination of the internal viscera **(Figure 3d)**

Retained particle Extraction and preservation of any retained particles in a red wax sealed envelope to be sent to the legal authorities after the examination

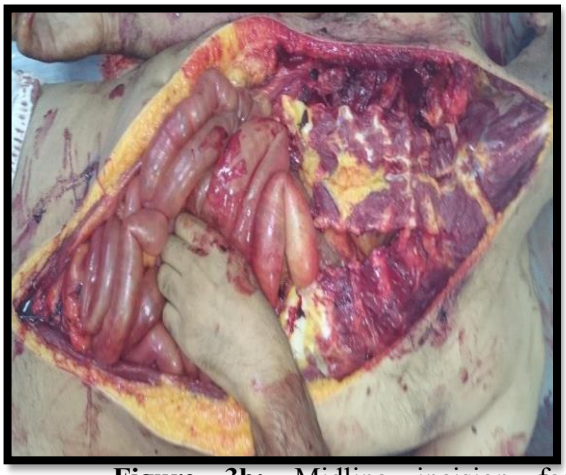

Figure 3b: Midline incision for complete examination of dead bodies (Zeinhom morgue*)(Eltokhy et al., 2024).*

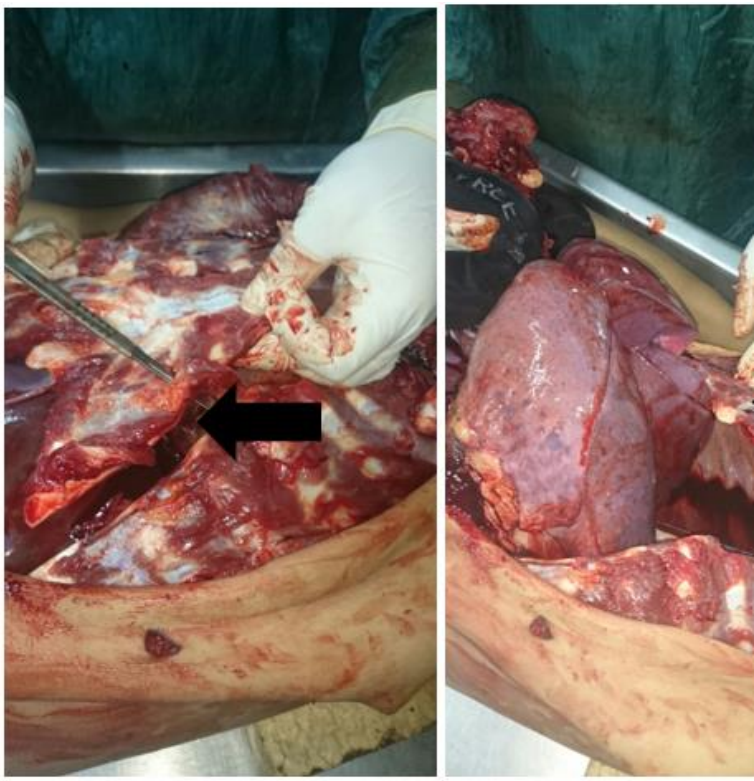

Fig. 3c&d: Internal examination of stab injury to chest (Zeinhom morgue) *(Eltokhy et al., 2024).*

4. <u>Examination of the weapon</u>

If the weapon is brought by legal authorities,

it should be examined for matching with the injury to determine if it was the actual causative instrumentExamination of the weapon includes the Handle (length).

i. Blade (length, maximal width, edge, and any special character, if any **(Fig. 4).**

Figure 4: Knife with blood stain for comparison with stab wound (Zeinhom morgue).

5. <u>Examination of the main mechanism of death</u>

- Hemorrhage **(Fig. 5).**

Figure 5: Intra-peritoneal hemorrhage- stab to the abdomen (Zeinhom morgue).

- *Organs laceration* **(Fig. 6) (Eltokhy et al., 2024).**

Figure 6: Chest wall & lung stab injury (Zeinhom morgue) *(Eltokhy et al., 2024).*

Collection of samples -if indicated by legal authorities- spatial DNA samples in cases which cannot be identified by the examiner, and then finally closure of autopsy wounds **(Figure 7).**

Figure 7: Closure of the autopsy incision (Zeinhom morgue) *(Eltokhy et al., 2024).*

3. Primary medical report

All this data will be documented in the primary forensic report to be reviewed by the head of the morgue, then preserved to be sent to legal authorities, and the dead body will be transported to the relatives, if present, with burial statement approval from the legal authorities.

If the dead body is not identified, it is preserved in the refrigerator in the morgue till completion of the identification process of the unidentified corpse.

4. Photography

Photos in the current study were taken using an A4K camcorder and a 20.7 MP camera.

Statistical analysis

The Data of our study was analyzed using the statistical package SPSS version 23. For categorical data. The data we used included count and percentage, and we used Chi chi-squared (□2) test for comparing categorical data. A P-value < 0.05 was considered statistically significant **(Chan, 2003)**.

RESULTS

116 deceased subjects were included in the study.

Demographic Characteristics

The majority of cases were males (102), their ages ranged between the 2nd and 8th decades of life, 76.7% were between the 4th and the 5th decades, and 98 % of them were known (well-identified) cases. The cases were 54% from Giza, 43% from Cairo, and 3% from Kalubia.

Regarding the cause of assault, fighting was the dominant cause, representing about 76% of cases, followed by financial problems, about 8%, sexual causes and revenge were equally represented as 7% each, and 2% of injuries were of unknown cause.

Sex relation with the cause :

The statistical comparison between sex and cause of injury shows a statistically significant difference (P =< **0.001**). Fight as a cause includes 95.5% males and only 4.5% females, while the sexual cause is the highest percent in female cases, 50% **(Table 1).**

According to the study, in 90% of cases assailant was known to the victim, 4% was a family member, either husband, father, or brother; female assailants represented 4% of cases, and only in 2% of cases the assailant was a person unknown to the victim.

Toxicological screening was done for all cases involved; 91% of cases showed no intoxication, 6% revealed tramadol in samples, 2% cannabis, and about 1% benzodiazepines.

About 14% of studied cases underwent vaginal and anal swabs for suspected sexual crimes.

Table 1: Chi-square test shows the relation between sex and cause of Assault.

	Cause of Injury										
	Financial		**Fight**		**Revenge**		**Sexual**		**Unknown**		**P value**
	Count	%	Count	%	Count	%	Count	%	Count	%	
Female	3	33.3	4	4.5	2	25.	4	50	1	33.3	< 0.001
Male	6	66.7	84	95.5	6	75.0	4	50	2	66.7	

***p value ≤ 0.5 is significant**

Injury description

ClOTHES EXAMINATION

From the studied 116 cases, only 76 subjects' clothes were available for examination, representing about 65.5% **(Fig. 8)**, of which 70 had blood and cuts opposite the injury, representing 60.3%, and the other 6 subjects' clothes had only blood, representing 5.2% of the examined subjects.

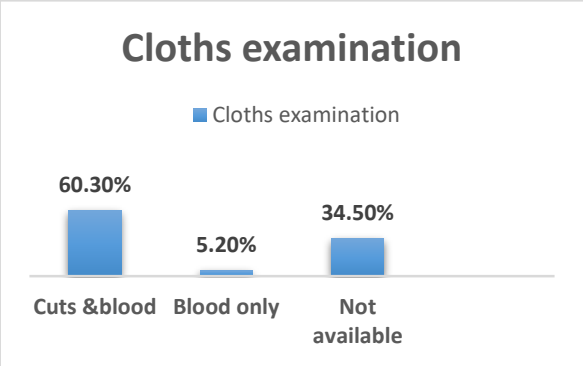

Figure 8: Individual examination findings after a stab injury.

WOUND EXAMINATION

Number of stab injuries

On examination of included subjects, 63 individuals (54.3%) were found to have only single stab injury, 46 individuals (39.7%) with (2-10) wounds, 3 individuals (2.6%) with (11-20) wounds, 2 a(1.7%) individuals with (21-30) wounds and 2 (1.7%) individuals with more than 30 stabs (**Table2)**

Table 2: Distribution of cases according to the Number of stab injuries

No. of stab	Count	%
1	63	54.3%
2-10	46	39.7%
11-20	3	2.6%
21-30	2	1.7%
>30	2	1.7%

RELATION BETWEEN THE CAUSE OF ASSAULT AND THE NUMBER OF STABS

The statistical comparison between the number of stabs and cause of injury shows a statistical significant difference (P =< ***0.001***), single stab is mostly associated with fighting (63.6%), while 2-10 stabs are mostly associated with sexual cause (62.5%), and more than 20 stabs are associated with revenge (12.5%) **(Table 3).**

5% of cases, usually with an atypically shaped wound **(Table 4)**

*The statistical comparison between wound direction and anatomical site shows a statistically significant difference (P =< ***0.001***)

Table 3: Chi-square test shows the relationship between the cause of injury and the number of stabs

		Cause of injury										
		Financial		Fight		Revenge		Sexual		Unknown		P value
		Count	%	Count	%	Count	%	Count	%	Count	%	
No. of stabs	1	2	22.2%	56	63.6%	2	25.0%	3	37.5%	0	.0%	< 0.001
	2-10	5	55.6%	30	34.1%	4	50.0%	5	62.5%	2	66.7%	
	11-20	1	11.1%	1	1.1%	0	.0%	0	.0%	1	33.3%	
	21-30	1	11.1%	0	.0%	1	12.5%	0	.0%	0	.0%	
	>30	0	.0%	1	1.1%	1	12.5%	0	.0%	0	.0%	

***p value ≤ 0.5 is significant**

Wound examination

Statistical analysis of wound length of the studied cases revealed that the maximum length was 7 cm and the minimum was 0.5 cm.

According to the shape of the wound, 47% of stab wounds studied were wedge shape with a single pointed end and the other end is blunted, 42% were elliptical, 4% irregular shape; rectangular, linear, and circular each was about 2%, and finally bruised wedge wound was found in 1% of cases.

According to wound direction, 36% were Oblique, 23% Transverse, 12% longitudinal, and multiple directions were found in about 24% of cases. An unspecified direction was found in about

Associated injuries

According to the associated injuries related to stab injuries in the studied cases there were 46% of cases had associated injuries. According to the site, the Face was the highest to be affected in about 19.8% of studied cases, followed by the neck in about 3.4% **(Figs. 9& 10)**. Regarding the type of injuries found, abrasions were the most encountered, about 17% followed by cuts in 13% of the studied cases

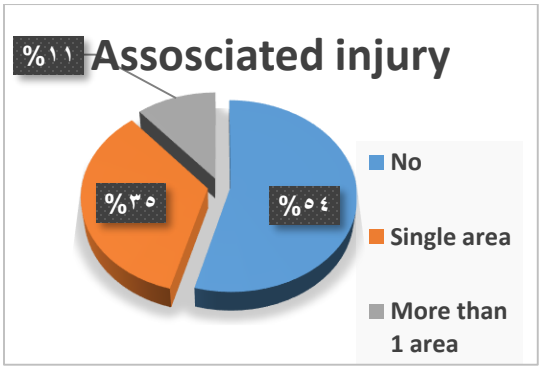

Figure 9: Distribution of associated injuries

Table 4: Chi-square test shows the relation between wound direction and anatomical site.

		Cause of injury										
		Financial		Fight		Revenge		Sexual		Unknown		P value
		Count	%	Count	%	Count	%	Count	%	Count	%	
No. of stabs	1	2	22.2%	56	63.6%	2	25.0%	3	37.5%	0	.0%	< 0.001
	2-10	5	55.6%	30	34.1%	4	50.0%	5	62.5%	2	66.7%	
	11-20	1	11.1%	1	1.1%	0	0%	0	0%	1	33.3%	
	21-30	1	11.1%	0	0%	1	12.5%	0	0%	0	.0%	
	>30	0	0%	1	1.1%	1	12.5%	0	0%	0	.0%	

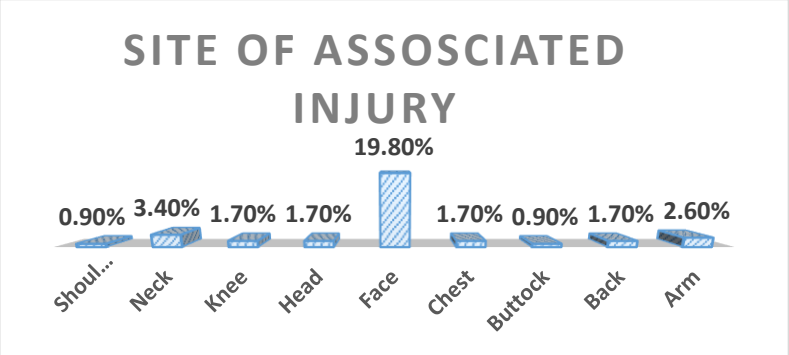

Figure 10: site of associated injuries

Defensive wound were found in about 59% of the cases studied **(Fig. 11)**, right forearm was the most affected area, in 17.2% of cases, followed by 13.8% for right hand and fingers, then 10.3% for left hand and fingers, left arm and forearm each was affected in 6% of cases, lastly right arm in 3..4% of cases.

Organ laceration

According to organ laceration found during autopsy of cases, we found organ laceration in 62% of the studied cases. **(Figure 12)**, Heart laceration had the highest percentage of 52.6%, followed by lung and major 37.9% in37.9%

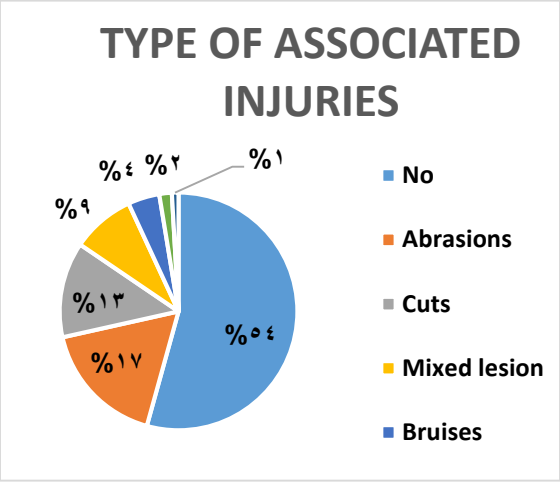

Figure 11: Type of associated injuries

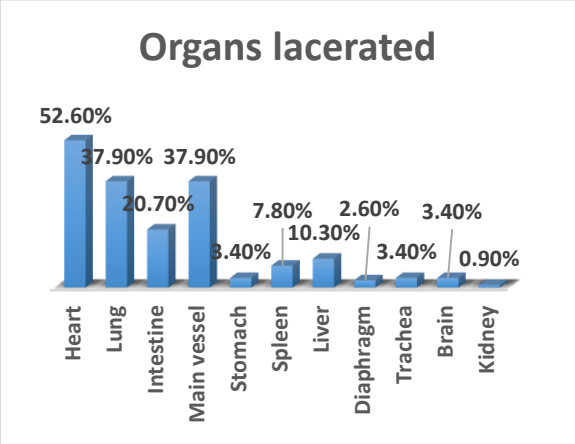

Figure 12: Organ laceration

WEAPON EXAMINATION

Weapon type

Among the studied 116 cases different weapons were identified to cause the injury; among the identified weapons knife was the most common tool used representing 32.8% followed by double bladed flick-knives 8.6% then single bladed penknives (pocket knives) 6.9%, other weapons were identified with small percentage including iron bar, screwdriver, broken glass, scissors, machette and dagger; 44% of cases weapon was unknown (**figure 13).**

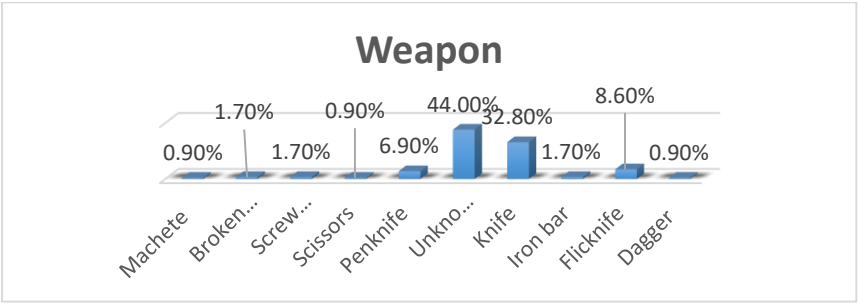

Fig. 13: type of weapon

RELATION BETWEEN BLADE CHARACTER AND WOUND SHAPE

The statistical comparison between blade character and shape of wound shows a statistically significant difference (P =< ***0.001***) **(Table 5).**

RELATION BETWEEN BLADE WIDTH AND WOUND LENGTH

According to the studied cases, a statistical comparison between blade width and wound length resulted in a strong positive correlation. **(Correlation Coefficient = 0.752*)*** between blade width and wound length and a statistically significant difference **(P =<** ***0.001***) **(table 6)**

CAUSE OF DEATH

According to studied cases, hemorrhage represented the cause of death in 40% of cases, injury to a vital organ represented 31%, a combination of both causes was found in 27% of cases, and only 2% died of septic shock. (**Figure 14)**

Table 5: Chi-square test shows the relation between blade character and wound shape

		Blade														
		Single fine		Single serrated		Pointed		Unspecified		Irregular		Flattened pointed		Double fine		P value
		Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	
shape of wound	Bruised, wedge	*0*	*.0%*	*1*	*33.3%*	*0*	*.0%*	*0*	*.0%*	*0*	*.0%*	*0*	*.0%*	*0*	*.0%*	
	Wedge	*43*	*95.6%*	*1*	*33.3%*	*0*	*.0%*	*11*	*21.6%*	*0*	*.0%*	*0*	*.0%*	*0*	*.0%*	
	Rectangular	*0*	*.0%*	*0*	*.0%*	*0*	*.0%*	*0*	*.0%*	*0*	*.0%*	*2*	*100.0%*	*0*	*.0%*	<
	Linear	*1*	*2.2%*	*0*	*.0%*	*0*	*.0%*	*0*	*.0%*	*0*	*.0%*	*0*	*.0%*	*1*	*9.1%*	*0.001*
	Irregular	*1*	*2.2%*	*0*	*.0%*	*0*	*.0%*	*2*	*3.9%*	*2*	*100.0%*	*0*	*.0%*	*0*	*.0%*	
	Elliptical	*0*	*.0%*	*1*	*33.3%*	*0*	*.0%*	*38*	*74.5%*	*0*	*.0%*	*0*	*.0%*	*10*	*90.9%*	
	Circular	*0*	*.0%*	*0*	*.0%*	*2*	*100.0%*	*0*	*.0%*	*0*	*.0%*	*0*	*.0%*	*0*	*.0%*	

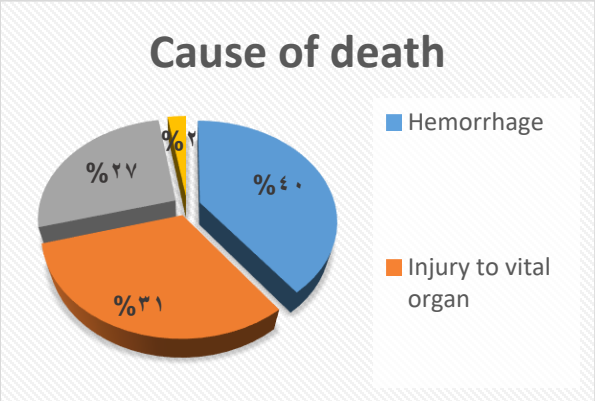

Figure 14: Cause of death

Table 6: Statistical correlation between blade width and wound length.

		blade width
Wound length (cm)	Correlation Coefficient	.752
	P value	< 0.001
	N	62

p value ≤ 0.5 is significant*Correlation Coefficient 0-1: positive (> 0.5 strong)

DISCUSSION

Penetrating trauma cases are increasing nowadays in parallel with the increase in violence **(Kartal Yeter, 2024)**

Stab wounds are of major importance in Forensic Medicine as this is a common method of homicide, and most deaths from stab wounds are homicidal **(Chowdury, 2019)**

According to the Sex distribution, in the

present work, male cases (87.9%) outnumber female cases (12.1%). The statistical comparison between sex and type of weapon shows no statistically significant difference (P = 0.356). A study by (Handlos et al., 2023)Found (82.8%) male cases to (17.2%) females. Also **(Disania et al., 2020)** A study of a South African district found that male cases (85%) outnumbered female cases (15%), and in accordance with **(von Linde et al., 2024)**

Another study by (Yang et al., 2024)In Western Norway found a distribution of cases was found as (75%) males and (25%) females, similar results were found

by **(Manso et al., 2021)**of (76%) males to (24%) female victims in his study

The most affected age group was in the 3rd, 4th& 5th decades (50 years), and their percentage was (89.6%), while the least affected age group was those in the 8th decade, and their percentage was (0.9%). The statistical comparison between subjects stabbed with different weapons in the different age groups showed no statistically significant difference (P 0.166).

Regarding age, in accordance with (Handlos et al., 2023)It is said that: The average age of this sample of 349 homicide cases was 35 years, with the highest percentage (76%) in ages between 20 to 40. Also (Zaheen et al., 2020)Who found the most frequent age groups were the age group (21-30 years), then (31-40 years), comprising about 58%.

(von Linde et al., 2024) Also mentioned that their study depicts that the maximum number of victims belonged to the 3rd decade of life (20-29 years)

In contrast to the current work**(Manso et al., 2021)** Mentioned that, males aged 35-40 years had the highest rate of stab deaths, also, **von Linde et al. (2024)**found the average age for homicide victims ranged from 34 to 40 years.

According to the cause of injury, Fighting was the dominant cause, representing about 76% of cases, followed by financial problems, about 8%. In agreement with the current work, a study of knife crime in England and Wales**(Zaheen et al., 2020)** The highest percent was for fighting (54%), followed by robbery.

Comparison between sex and cause of injury shows a statistically significant difference (P = <0.001). Fight as a cause includes 95.5% males and only 4.5% females, while the sexual cause is the highest percent in female cases 50%, which conflicts with **(Manso et al., 2021)** Who found no significant difference between the genders as regards the number of injuries?

According to toxicological findings in our study, screening was done for all cases involved; (91%) of cases showed no intoxication, (6%) revealed tramadol in samples, (2%) cannabis, and about (1%) benzodiazepines. A study by **Manso et al. (2021**) mentioned that toxicological analysis was conducted only in 49% of cases. 35.5% of the screened cases were negative for drugs, 49% were under the influence of alcohol, and 20% of cases were under the influence of opiates, cocaine, or cannabinoids **(von Linde et al., 2024). Also** found ethanol, drugs, or both detected in 79% of the subjects

Substance use is widely recognized as a risk factor for being a victim or perpetrator of violence. Alcohol use has been associated with several physical and mental effects that may increase the risk of being involved in violence as either a victim or a perpetrator, including increased aggression, reduced inhibitions, impaired decision-making, and poorer ability to interpret behavioral cues. Similarly, some illicit drugs such as amphetamines and cocaine are commonly associated with changes in mood and behavior, including aggression, irritability, insomnia, and anxiety **(Lau,2024).**

Regarding the number of stab wounds, the majority of cases showed a single stab wound (54.3%), which may be due to a lack of intention during fighting to cause death, 39.7% showed 2-10 stabs, and 6%) more than 10 stabs. The results of the present study are in agreement with the study of **(El-Sarnagawy et al., 2022)** In which (59 %) of deaths had a single wound. **Also (Manso et al., 2021)** mentioned that nearly half of the subjects had only one sharp force injury, while in a study done **by (Handlos et al., 2023)** (53.5%) Patients were noted to have more than one wound, with a median number of wounds per patient of 2, and the greatest number of wounds sustained by one individual was 10. In contrast to the current work, the main findings in homicides are the presence of multiple sharp force injuries (90.2%); single wounds were present only in 9.8% of cases **(von Linde et al., 2024).**

Type of causal weapon: According to type of causal weapon, different weapons were identified to cause the injury; among the identified weapons knife was the most common tool used representing (32.8%) followed by double bladed flick-knives (8.6%) then single bladed pocket knives (6.9%); often kitchen knife is used, presumably because it is easier to pocket, easier to dispose of and more easily available.

(El-Sarnagawy et al., 2022) Also found that in (83%) of the incidents, a knife was the weapon used to inflict the injury, followed by broken glass in (8%) of the cases. A study **by Lockyer et al. (2013)** found that the knife was the most used weapon, followed by a bush knife; other weapons, such as broken bottles, screwdrivers, and sharp sticks, were less frequently used. This could be attributed to the availability of these weapons in a farming area or because assailants chose to harm themselves in advance. **(von Linde et al., 2024)** identified a knife in (85%) of homicides.

According to associated injuries complicating stab injury in the studied cases, there were (46% of cases had associated injuries). Regarding the site, the face was the highest to be affected in about (19% of studied cases, then the neck in about 3.4%. Regarding type, abrasions were the most encountered (17%), followed by incised wounds (13%). In

accordance with the current work, (Handlos et al., 2023) Found associated injuries occurring in (46%) of homicides. However, other studies have found a much lower occurrence of additional injuries in homicides than the present study, ranging from 7% to 28%.**(El-Sarnagawy et al., 2022)**

According to organ laceration found during autopsy of cases, single organ laceration (49%), multiple organ laceration (51%), with heart laceration had the highest percentage (52.6%), which goes with the higher percentage of stab site being the left side of the chest. In accordance with the current work (**Handlos et al., 2023)** found that the heart, lungs, and thoracic vessels were the most commonly injured in homicides. The heart is damaged in (58%) of single homicidal cases, which is due to the anatomical distribution of stab wounds in these sites.

CONCLUSION

The percentage of deaths that are due to stab injuries has widely increased in different parts of the world, mainly due to the availability of weapons. There is a substantial and growing literature on the epidemiology of stab-related deaths. Many of these directly address the issue of the impact of sharp force trauma on death rates. This study enrolled stab-related deaths during 12 months, and the results of this study regarding victims of stabbing revealed: Male sex predominance, the more affected age groups including the third, fourth, and fifth decades, but senile cases were found to be less affected, and Knives were the most prevalent weapons in the study.

RECOMMENDATIONS

At the end of this study, we recommend the following:

1. Strict laws that forbid carrying sharp weapons in public places.
2. The creation of a large-scale project to investigate the illicit pocket-knife possession tradition throughout Egypt and devise a strategy to prevent this habit and thereby lower the number of deaths caused by it.
3. The creation of a system for recording deaths related to sharp force that encompasses all of Egypt's provinces, particularly those with low socio-educational levels.
4. The creation of additional studies to look at different facets of the same subject in the same province and other Egyptian provinces.

Ethical Approval

The Research Ethics Committee of Forensic Medicine and Clinical Toxicology Department, Faculty of Medicine, Cairo University approved this Study.

Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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الملخص العربي

حالات الوفاة الناتجة عن الإصابات الطعنية القاتلة

المحالة إلى مشرحة زينهم

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ارتفع عدد حالات الوفاة بالطعن بشكل حاد في جميع أنحاء العالم. ولوحظ أنه أحد الأسباب الرئيسية للصدمات في العالم. وهذا جعل دراسة الوفيات المرتبطة بالطعن ذات أهمية طبية وقانونية، مما سيساعد في السعي لتحقيق العدالة الجنائية. الموضوعات والطرق: أجريت دراسة مقطعية تتعلق بالمعلومات الديموغرافية ونتائج الفحص الجنائي على 116 حالة من كلا الجنسين ومن مختلف الفئات العمرية، تم إحضارها إلى مشرحة زينهم في غضون 12 شهرًا، وكانت إصابات الطعن هي السبب الرئيسي للوفاة: تم العثور على فرق ذي دلالة إحصائية في المقارنة بين: نوع السلاح وشكل الإصابة، ونوع السلاح وطبيعة النصل، والمنطقة التشريحية المتضررة واتجاه الإصابة، وعرض النصل وطول الجرح الخارجي، وعدد الطعنات فيما يتعلق بسبب الاعتداء أو جنس الضحية. الاستنتاجات والتوصيات: هناك حاجة لضمان الحد المناسب من ملكية الأسلحة الحادة، بالإضافة إلى التوثيق الدقيق لجروح الطعن. إن حضور الطبيب الشرعي إلى مسرح الجريمة يضمن الإدارة المناسبة لقضايا الطعن والعينات في مكان الحادث