

PAPER**GENERAL**

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Intentional Homicide: A Fifteen-Year Study (2000–2014) at the Department of Forensic Medicine, University of Rome “Sapienza”

ABSTRACT: This study analyzes postmortem records from 260 homicide cases autopsied by the Department of Forensic Medicine in Rome from 2000 to 2014. The victims were mainly males (74%) and young (61% aged from 21 to 50 years). Although the victims were mostly Italians, the number of foreign victims (33%) has increased since 1990, primarily due to immigration. The offenders frequently used firearms (39%), particularly in multiple murders. An increase in blunt (20%) and sharp force (32%) weapons was also seen. The primary crime scene was residential (42%), and the head was the most frequently injured body region. Male victims occurred frequently in the context of organized crime (7.6%). In family or intimate-sexual relationships, women were the majority of victims (8%). Forensic pathologists play an important role during investigation. They should consider all the information available to them, including autopsy information, crime scene information, and crime investigation data.

KEYWORDS: forensic science, forensic pathology, homicide, Rome, firearms, sharp instruments, victims

Homicide is the act of killing someone, and it is considered a significant indicator of social alarm (1,2). Homicide represents a complex phenomenon, and it offers an opportunity to better understand the different criminological, cultural, geographical, and economic dynamics underpinning of the transformation of contemporary society (3).

The latest report on the homicide rate in European countries (3) shows that Italy is below the European average (1.9 per 100,000 inhabitants) with an incidence of 1 per 100,000 people, which is similar to that found in Spain and Sweden, and below the rate for the Netherlands and Greece (both with 1.1 per 100,000 inhabitants), and the U.K. and Portugal (both with 1.4 per 100,000 inhabitants). The risk of homicide is higher in the Baltic states, with an average homicide rate of 8.4 per 100,000 inhabitants in Lithuania, 6.7 in Estonia, and 4.6 in Latvia (3) between 2005 and 2010. In 2013, homicide rate in Lithuania decreased to 6.7 cases per 100,000 people, while in Latvia, it was 3.4 cases per 100,000, and in Estonia, 3.9 cases per 100,000 (4).

In the city of Rome and its metropolitan area, the homicide rate was 0.52 per 100,000 inhabitants in 2013 (3), which is lower than the national average (1.9 per 100,000), and it showed a slight decrease compared with the rate in 2000 (0.67 per 100,000 inhabitants).

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In this research, we studied the trend in the homicide rate in Rome to update our current knowledge, as well as to evaluate the effect that changes in the city’s social, economic, and demographic conditions may have had on this statistic. For this purpose, we examined all the cases of murder recorded by the Department of Forensic Medicine of the University of Rome “Sapienza” between 2000 and 2014, and we compared these data with those of similar studies carried out in the previous years by the same Department (5–7).

Materials and Methods

We conducted the study using cases processed at the Department of Forensic Medicine of University of Rome “Sapienza,” which receives approximately 1200 bodies annually coming from the city of Rome and its metropolitan area.

A total of 14,576 autopsy files from the Department of Forensic Medicine between January 2000 and December 2014 were examined to select only homicide cases. For each case, we considered the information obtained from police reports, from municipal morgue records (hour and date of arrival, origin, police station of record), postmortem examination reports, as well as histopathological and toxicological laboratory reports. Only cases of full voluntary and manslaughter homicides were further examined. The information obtained from autopsies and medical examinations was integrated with that gathered from a careful review of the national and local press, and a targeted search of information from the judicial proceedings for each case.

We considered the following details in each case:

- Gender

- Age
- Nationality of victims
- Homicide methods and types of injuries
- Anatomical distribution of injuries and, where possible, fatal injuries
- Survival time
- Death scene
- Homicide-suicide events
- Multiple murders
- Relation between the victim and perpetrator
- Motives

We tabulated the data for each parameter from all cases by consulting the medical reports and police records. The motive of homicide was missing in 59 cases. The results were compared with the population data and with the department's previous studies from 1966 to 1975 (5), 1950 to 1979 (6) and 1985 to 1996 (7).

For that specific study period (2000–2014), the data showed a progressive population increase in the city of Rome from 2,655,970 in 2000 to 2,870,143 in 2014 (Italian National Institute of Statistics –ISTAT- Report 2017) (8).

Results

Homicide Distribution Over the Period Between 2000 and 2014

Between 2000 and 2014, a total of 14,576 autopsies were performed at the Department of Forensic Medicine at the University of Rome "Sapienza." Two hundred and sixty cases of homicide were examined, and in all these cases, full autopsies were performed.

Although the population increased, our study did not show a comparable increase in the homicide rate, with the total number decreasing from 2000 to 2014. The population increase was primarily due to the movement of population from the surrounding areas to the urban area. The number of homicides decreased, from 0.67 homicides per 100,000 people in 2000 to 0.52 in 2014 (Fig. 1).

Distribution of Victims by Sex

In the surveyed period, the majority of the victims were males (193 cases, 74%) versus females (67 cases, 26%). Please see Fig. 2 for a graphical representation of the data for the years studied.

Distribution of Victims by Age

Both males and female victims in the period studied were young, with the largest percentage in the 21–50 years old age range (159 victims, 61% of the cases examined). The current study showed a significant decrease in the number of victims over the age of 50 years old. The number of victims younger than 20 years old decreased (15 cases, 6%) compared with the earlier studies (1966–1975, 7%) (6) and (1950–1979, 9.9%) (5). In the current study, the majority of male victims were between 31 and 40 years old (44 cases), while in the female group, most of the victims were between 41 and 50 (15 cases; Fig. 3).

Distribution of Victims by Citizenship

Eighty-six (33%) victims were foreigners. In the last 15 years, the number of foreign victims has increased to 33% (Fig. 4) compared with our previous studies (5–7).

Distribution of the Phenomenon by Survival Time

The study noted that the immediate death cases (number reported 218, 84%) outnumbered those of nonimmediate death (number reported 42, 16%); in the nonimmediate death cases, death occurred during either transportation by ambulance or during hospitalization.

Scene of Death

The location of the homicide was examined as it is often correlated with the relationship between the offender and the victim, and it may help to explain the context in which the homicide took place. Homicides were committed in private houses (42%), in public streets (20%), open-air places (urban parks and/or gardens 18%), isolated places (suburbs and/or country places 14%), cars (5%), and rivers (1%) (Fig. 5).

Homicide Methods and Types of Injuries

The present study shows that fatal injuries were mainly caused by firearms (101 cases, 39% of the total). In 83 cases (32%), the deaths were due to sharp force injuries. In 53 cases (20%), the offender used blunt instruments. Asphyxiation was the method of homicide in just 5% of the cases (12 cases). Finally, a combination of methods was used in 11 cases (4%). See Fig. 6 for more details.

Our study showed that firearms were the most common weapons at the beginning of the 2000s (with a peak frequency peak in 2002 and two further peaks in 2007 and 2013), while sharp instruments were mainly used as homicidal method in 2005, 2006, 2009, 2011, and 2014. In 2008, blunt instruments were most commonly used.

The frequency of homicides by asphyxiation did not show significant variability over the period 2000–2014.

We divided firearms into single and multiple-action weapons: The first represented the most frequent weapons (94%) compared with multiple-action weapons (6%). For multiple-shot firearms, a prevalence of a single shot was observed and in single-charge firearms, multiple shots were often observed.

Homicides carried out with sharp instruments were divided into point weapons, point, and sharp weapons or blunt weapons. Sharp-pointed weapons were the most frequently used (70%), and we observed a prevalence of multiple stab wounds on female victims.

For murders carried out with blunt instruments, it was not always possible to identify exactly the means used. When that was possible, they were generally instruments with small impact surfaces in which considerable energy could be impressed (e.g., a hammer or a stick).

For homicides caused by asphyxiation, objects used for strangulation were synthetic laces, electric wires, and bathrobe belts, while smothering was mainly via pillows. In the only case of drowning, the perpetrator was a father who killed his 16-month-old son by throwing him in a river from a bridge.

Anatomical Distribution of Injuries

The thoracic area was the region most frequently involved in cases of firearm use (43%). In such cases, the cause of death was lesion of thoracovisceral structures (aortic, cardiac, and pulmonary; Fig. 7).

The chest was the predominant site of fatal injuries for homicides carried out with sharp instruments (36%). Victims died

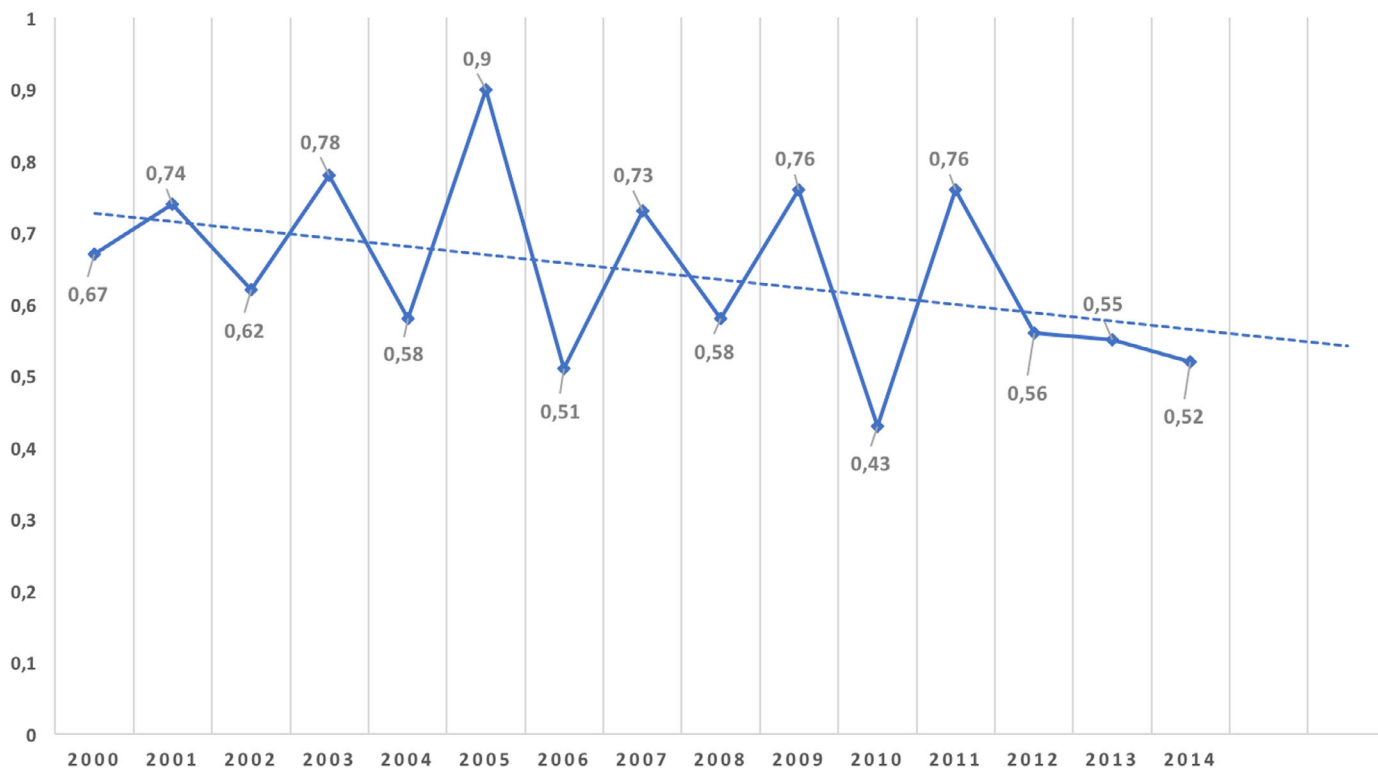


FIG. 1—Homicide distribution over the period between 2000 and 2014, risk index.

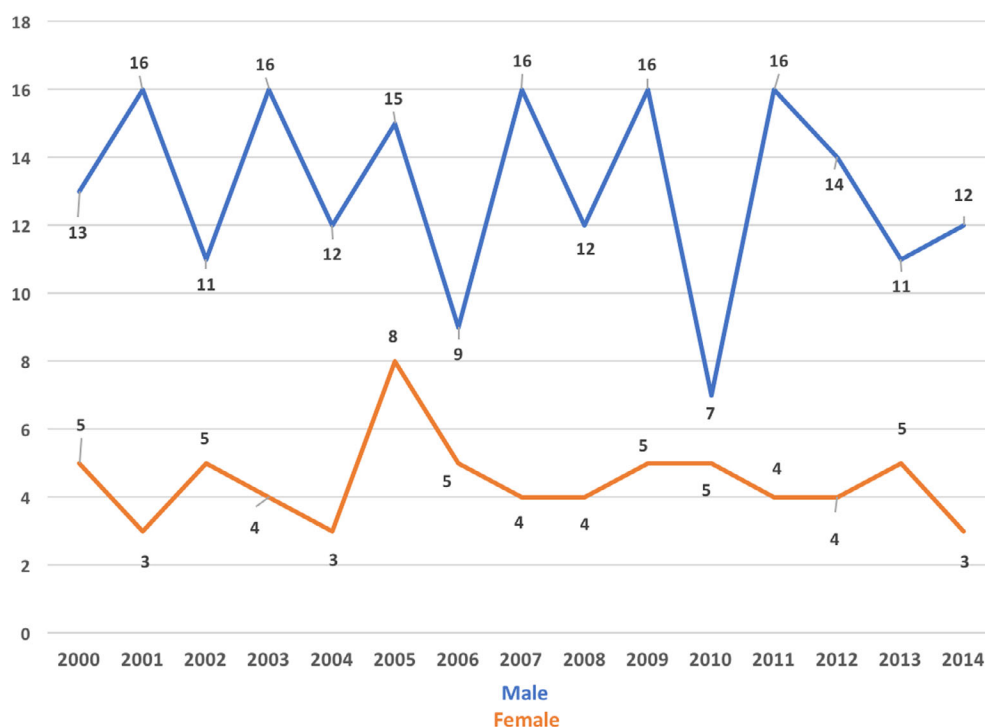


FIG. 2—Distribution of victims by sex.

most frequently from clinically significant hemorrhages caused by lesions of the heart, lungs, and/or major vessels.

The skull was the site more frequently involved in homicides by blunt instruments (87%); death was generally due to brain lesions or to their consequences and/or complications (e.g., infections subsequent to intensive care in those victims who did not die immediately).

Homicide-Suicide Events

During the surveyed period, 8 homicide-suicide events were observed (3% of our study). All those cases were characterized by an intimate relationship between the victim and perpetrator (familial or romantic partnership); most of the victims were females (F:6/M:2). In all cases, the homicide occurred in a

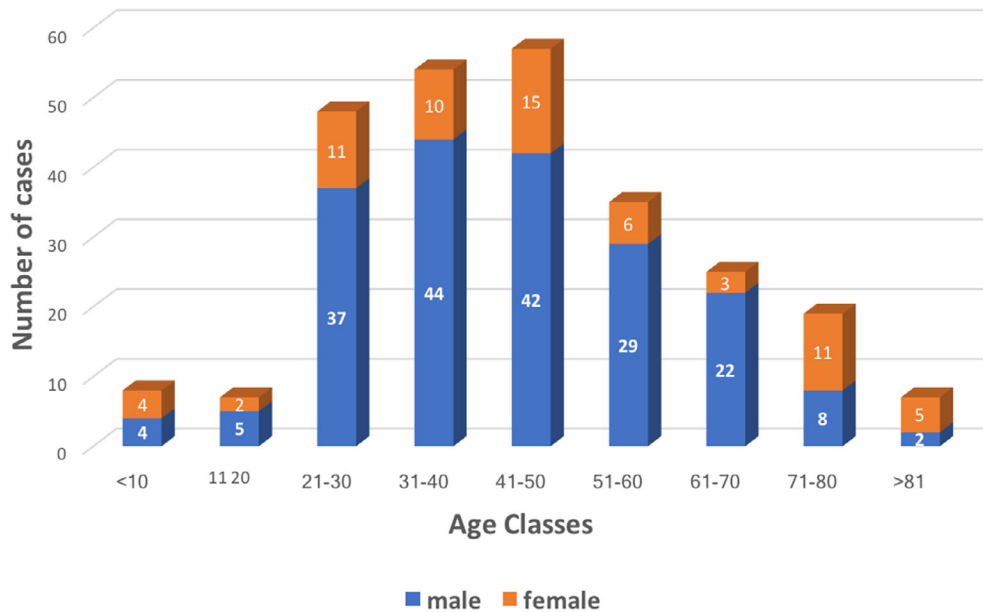


FIG. 3—Distribution of victims by age and sex.

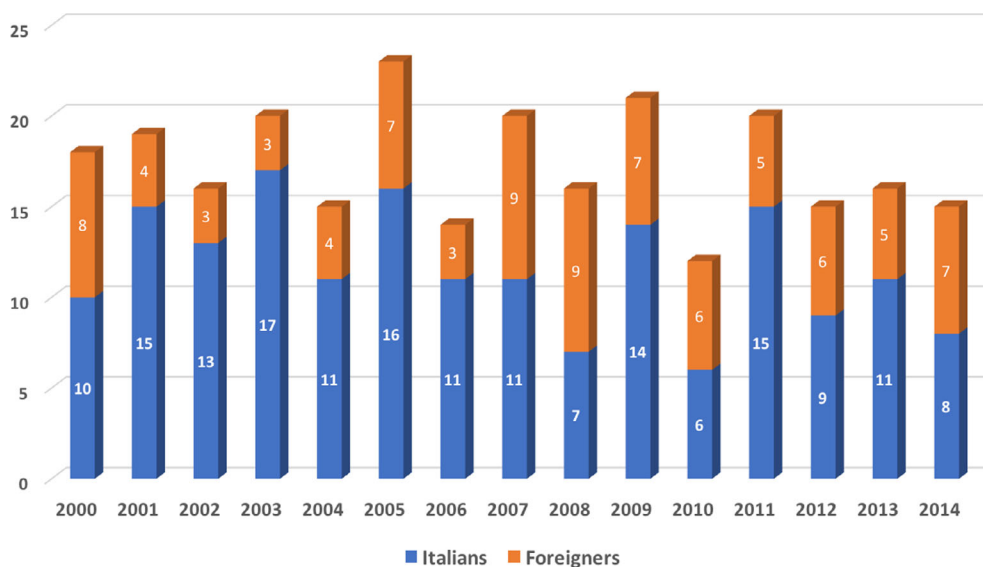


FIG. 4—Distribution of victims by citizenship.

private house, and in most cases, the homicide was carried out with a firearm or with combined means.

Multiple Murders

During the surveyed period, there were 14 multiple murders; in one case, homicide was followed by the perpetrator’s suicide (the mother). All cases of multiple murders had 2 victims, and in most cases, the perpetrator used a firearm.

Relationship Between the Offender and the Victim

This study investigated the possibility of a relationship between the offender and victims. One hundred and twenty-two cases (47%) occurred between persons who did not have any

kind of relationship, while in 138 cases (53%), there was an interpersonal relationship (Fig. 7).

Motives

We observed that 21 cases (8%) were homicides between romantic partners; in all cases, the victim was a female (married or cohabitant). In 37 cases (14%), the homicides occurred in the context of a crime: 34 cases occurred during a robbery, and three were associated with drug dealing. However, 94 cases (36%) involved people without any criminal connection; the homicides took place for occasional motivations (e.g., road rage, occasional fight, quarrel between neighbors, etc.). In 20 cases (7.6%), the homicides occurred in the context of organized crime. In 22 cases (8.4%), homicides were attributed to psychic

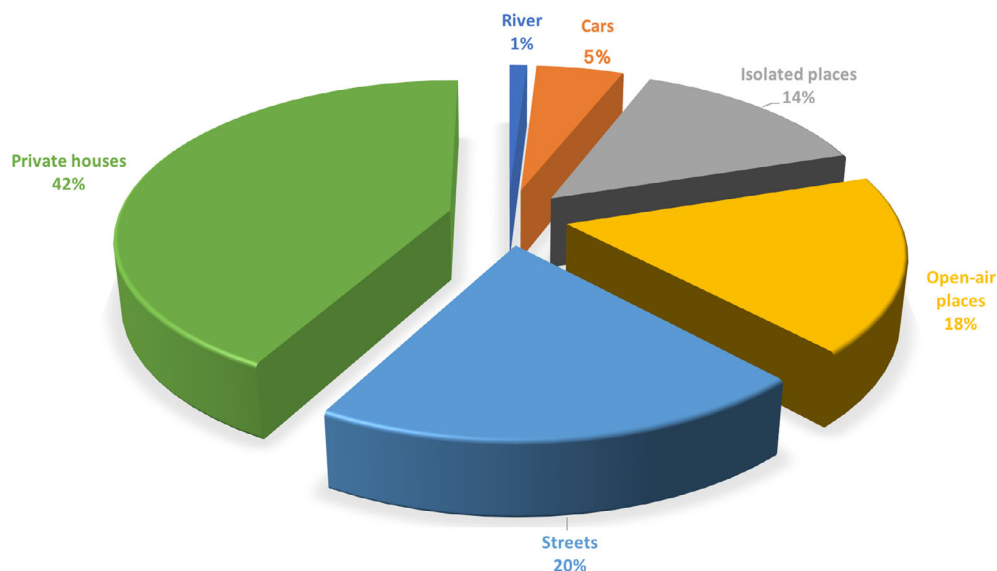


FIG. 5—Scene of death.

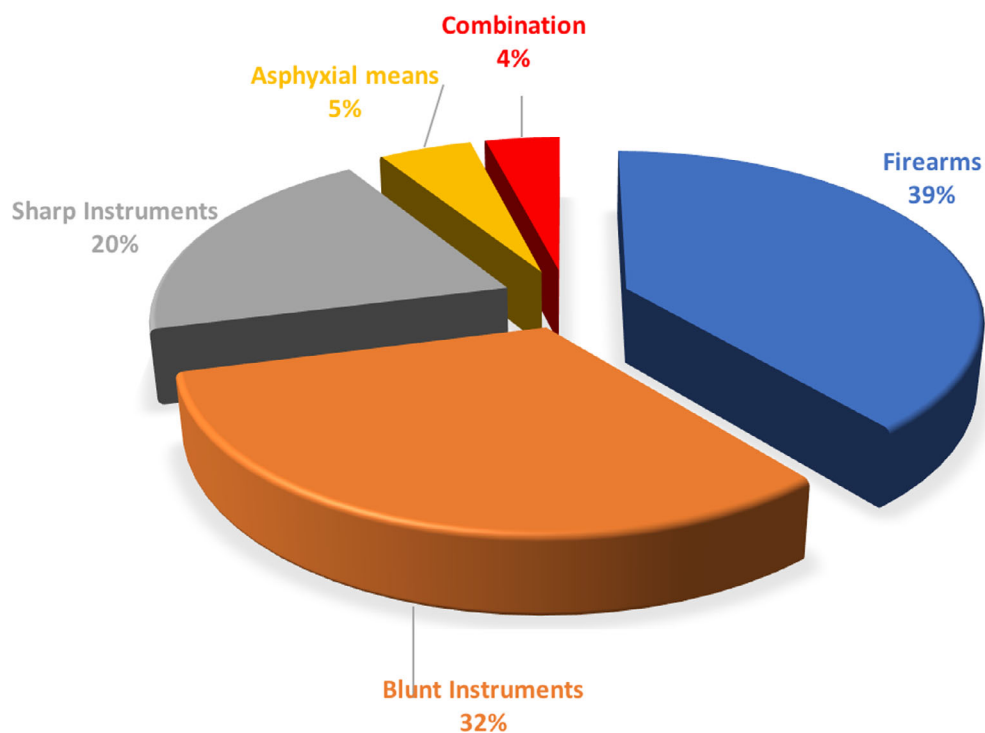


FIG. 6—Injurious means.

and neuropsychiatric disorders; the person who suffered from neuropsychiatric disorder was the victim in five cases and the offender in 13 cases. In seven cases (3%), the homicides were due to other motives (4 to revenge; 2 to refusal of a homosexual act; 1 to homophobia). In 59 cases (23%), it was not possible to identify the exact motive of the murder.

Discussion

According to the definition (1,2), intentional homicide means unlawful death purposefully inflicted by a person to another one.

We used the terms “homicide” and “murder” interchangeably to mean “intentional homicide.” Within the broad range of events leading to the death of a person, the question concerning the contribution of people to determine death is essential to contextualize homicides. For this aim, the study of injuries—both from a qualitative and quantitative point of view in connection with the manner in which the event took place—it is also useful to characterize the homicide from a juridical point of view.

The United Nations Office on Drugs and Crime (UNODC) in its Global Study on Homicide (2013) (9) states “that the core element of intentional homicide is the complete liability of the

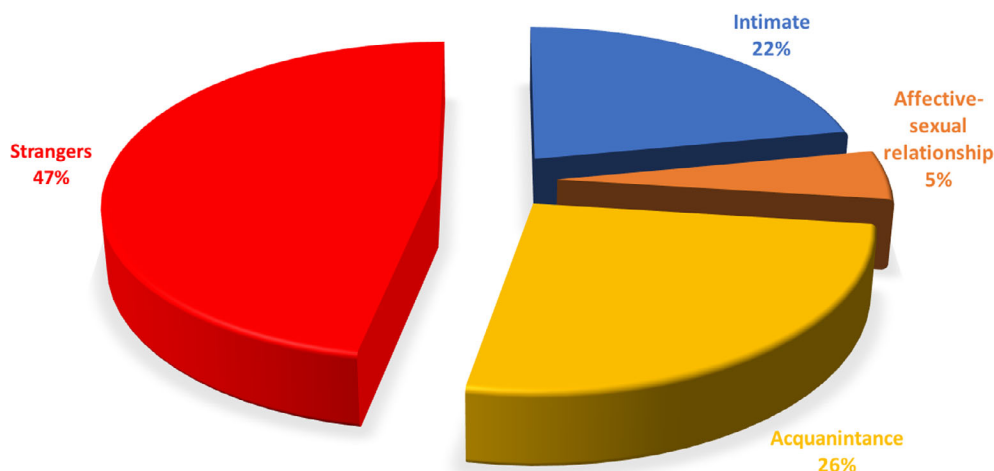


FIG. 7—Relationship between the offender and the victim.

direct perpetrator, which thus excludes killings directly related to war or conflicts, self-inflicted death (suicide), killings due to legal interventions or justifiable killings (such as self-defense), and those deaths caused when the perpetrator was reckless or negligent but did not intend to take a human life (nonintentional homicide)."

The results of our study provide interesting information about homicide, especially when compared with data on demographic trends of the population living in the municipality of Rome and with the results of similar studies carried out in the same forensic Department in the periods 1966–1975 (5), 1950–1979 (6), 1985–1996 (7) as well as with the data available in the literature.

The chance to compare data concerning murders with similar case studies developed in previous decades at our Department allows for a critical assessment of the data to understand the possible sociological change of the phenomenon.

As shown in Table 1 the homicide rate was characterized by a slight decrease despite the increase in the population (from 0.67 homicides per 100,000 to 0.52). This decreasing trend, according to data on the evolution of intentional homicides in Italian statistics published by the National Institute of Statistics (8) and by the European Economic and Social Research Institute EURES (3) report, is connected to the disappearance of murders linked to political crime but above all to the change operations of criminal organizations (10). We believe that the decreased murder rate in our study is also linked with the decrease of homicides related to organized crime.

The prevalence of males observed in the present study, highlighted even in other previous studies (5–7,11), is probably connected to the significant participation of men in the Italian social life and in common criminal organizations. The incidence of homicides with female victims has been constant over the surveyed period, and it is supported by other observations (12). This suggests that such homicides are not responsible for the decreasing trend of homicides noted (3).

A study (13) on female homicides conducted in Italy between 2002 and 2012 detected 2220 female victims, corresponding to an average of 171 victims per year, and highlighted that the phenomenon, as well as in most European countries, was mainly confined to the domestic environment. Women murdered by their partner or ex-partner represented 66% of domestic murders (13). Most female homicides involved sharp or sharp-pointed

instruments, and victims had multiple injuries in many cases (14,15).

In many countries, home is the place in which women are at the highest risk of violence or murder, while male homicides occur most often in public places (14); our study confirms this trend.

The data stability of female homicides rate observed in our study and according to data published in the scientific literature indicate that modification of Italian law directive did not have positive effects on the phenomenon trend (13).

The high number of murders in the age group between 31 and 50 years (43% of examined cases) observed in our study suggests, compared with previous case studies (5–7), an increase in the average age of victims. This finding is probably due to actual Italian social context, where people find jobs and achieve economic independence and social placement in older age comparing the past (16). Therefore, people express their personality in all its complex perspectives at a more advanced age; even violent aspects arise later and, among these, violent or homicidal behavior (16).

Our analysis indicated that male victims were more frequently young adults, while female victims were older in average age. If considered in connection with the motives of murders, these data seem to be correlated with the greater presence of men in social life and in organized crime at a young adult age, while women were more often victims of domestic homicides in adulthood and during robberies when they are elderly.

Murders in childhood generally represent the ending of psychic and psychopathological discomfort experienced by the offender (generally parents or family members) or of interpersonal conflicts that have arisen in the family environment, as highlighted in the study carried out by Traverso et al. (17) about the motives of the homicide of sons.

Our study examined the number of foreign victims compared with a previous study conducted in the city of Rome. Data concerning the distribution by nationality of victims were considered for the first time in the study carried out in Rome in the period 1985–1997 (7), while researchers in previous studies (5,6) did not observe foreign victims.

This study reveals an increase in the number of foreign victims in the years 2000–2014 (18% detected by Cipolloni (1985–1997), 33% in our study; Table 1). These findings are related to migratory flow, which has increased the foreign resident population in Rome.

TABLE 1—Overview of studies on homicide at Forensic Department university of Rome-Sapienza

	Merli et al. (1978) (5)	Ciallella et al. (1985) (6)	Cipolloni et al. (2000) (7)	Cipolloni et al.
Resident pop. Rome	2,797,337		2,546,804	2,870,143
Foreign residents		48,168	56,156	364,632
Homicides rate	1.6 × 100,000	1.1 × 100,000	0.67 × 100,000	0.52 × 100,000
Foreign victims from U.E	0%	0%	3.6%	14%
Foreign victims extra U.E	0%	0%	15%	19%
% foreign victims variation	0%	0%	+18%	+14%
Immediate death	69%	—	75.1%	84%
Scene (private house)	46%	40%	38.9%	42%
Organized crime	27%	32.2%	23.7%	7.6%

In the study carried out in the city of Brescia, Verzelletti (18) observed the same pattern: The first foreign victim was recorded in 1992, while Vasapolo (19) described the first one in Bologna in 1990.

According to the study of Pelosi (20), the increase in the foreign population in the city of Rome, particularly from African and Middle East countries, is related to continuous economic growth with demand for more workers, especially for less-skilled positions, which favors the immigration of foreign citizens from underdeveloped countries.

However, the data from our study clearly indicate a poor correlation between the increase in the immigrant population and an increase in the number of foreign victims. In fact, while foreign residents in Rome between 2000 and 2014 increased by 115%, foreign victims of murders only increased by 14% when compared with previous studies (5–7). This finding is in agreement with other studies that have correlated the number of murders with resident immigrant populations, even on a regional basis. These studies showed that the increase of immigrants did not necessarily involve a significant increase in the murder rate (21–23).

The present research reveals the prevalence of homicides with immediate death (84%) is consistent with the results of previous studies (69% by Merli et al. 75.1% by Cipolloni et al.) (5,7). These data, in our opinion, indicate the determination to kill that characterizes the voluntary murders. In one study of voluntary homicide (24), the victims were more often attacked in vital areas (heart, brain, and thorax), and the means used better suited to be highly effective (firearms, knives, etc.) (25).

We noticed that private houses were the most frequent location in which homicides occurred—as observed in other studies (26) and emotionally based crimes occurred primarily in private houses, in agreement with previous studies (18,20,23).

Homicides most frequently involved firearms, followed by sharp instruments, blunt instruments, and asphyxia. However, since 1975, there has been a reduction in the number of murders involving firearms. Homicides carried out by sharp instruments increased and became prevalent in the years 2005, 2006, 2009, 2011, and 2014 and exceeded the use of firearms (data not shown).

A decrease in the incidence of firearms could be explained by considering the main kind of crime prevalent in Italy during different periods (27). In the years 1960 to 1980, political and organized crime were more widespread (28), possibly explaining the more frequent use of firearms. In the period considered in our study, as stated above, we observed a prevalence of homicides related to emotional reasons and to common and occasional criminality, which would explain the increased use of sharp instruments, as observed by other authors (15,29).

The decreasing use of firearms can be explained even with the effectiveness of the Italian legislation regulating the possession of firearms (30).

Our data show a decrease in cases of homicide-suicide compared with previous studies (7), and most of them occurred between people who have an intimate relationship (parents or spouses) (17,31,32). In some cases, the dynamic of the murder could be understood only by combining findings emerged during the autopsy with circumstantial evidence of the crime scene investigation, which often allows classification of the case as a homicide-suicide (33,34).

An epidemiological study carried out in Italy between 1985 and 2008 established that this kind of homicide was most commonly related to jealousy (35), followed by familiar and economic motives (36); the events we recorded in our study were part of these categories.

The higher frequency of homicide within the family context is in agreement with previous studies performed in our department, and it is congruent with the observations of studies carried out in other cities (18,37) and with the national trend (38).

Examining the correlation between injurious means and offender-victim relationships, we noted that murders of people who have no personal relationship (organized and common criminality and occasional events) (39) are more frequently carried out with firearms (61 cases of the 122 victims). Homicides in a familiar context and/or between people who have emotional relationships or acquaintance are committed more frequently with sharp instruments (30 cases on a total of 70 victims and 23 cases on a total of 68 victims, respectively).

The mode of production as well as anatomic distribution of injuries is useful to make a differential diagnosis between murders committed by people without any victim-aggressor relationship and family-related murders (40).

A study on family murders conducted in Rome highlights the increased use of sharp instruments in crimes with a strong emotional-affective component. In those cases, the offender acts under the influence of an emotional state with loss of control. In other kinds of homicides, the offenders premeditate the action and then use firearms to commit the crime (41).

In our experience, both crime scene and autopsy findings are immediately conveyed to the police by a preliminary report to approach the investigations. Generally, forensic pathologists testify in court in all homicide cases.

In contrast to previous reports conducted in recent years in our department, between 2000 and 2014, the most frequent motive of homicide was occasional criminality. In this category, homicides were committed while other crimes were perpetrated (theft, rape, mugging, fights, etc.) by people with no affiliation to criminal organizations.

Motives linked to organized criminality account for only 8% of cases; these victims often had criminal records related to illegal activities, such as drug trafficking or fencing or affiliations with the mafia, camorra, or other structured criminal organizations. In the period 1988-1995, organized crime made the biggest contribution to the growth of homicides. Starting from that year, police forces have achieved considerable successes in the fight against crime organized. This action has led to a real collapse of such kind of homicides that, since the mid-nineties, have recorded levels lower than those preceding the start of the peak.

Conclusion

The present study refers to a large number of murders and provides an important pattern of information useful to better understand intentional homicide through a complete analysis of the injuries caused by the crime. All information on crime is immediately conveyed to investigators to approach and support the police investigations. In particular, the analysis of the context of homicides, numbers of injuries, location, and methods used are all functional to discriminate between emotive-passionate homicides and criminal-related homicides.

The most evident data highlighted in our study is a decrease in the number of the intentional homicides; this observation is in agreement with the national trend.

The reduction of the risk index for voluntary murders can be quite comforting, but it has to be considered that modifications in the phenomenology were showed. Such changes indicate an important critical issue in economic, social, and cultural perspectives, with implications in the different contexts in which the murders occurred.

Meaningful results concerning the decrease in homicides are related to organized crime. We think that this is the cause of the reduction of homicide by firearms. The results show that male victims are more frequent in the context of organized crime. In family or intimate-sexual relationships, women are the majority of victims because violence is often expressed in extreme ways.

The stability of the feminicide rate shows that significant social and cultural problems persist. The data related to the constancy of feminicide are significant because it is in contrast with the decrease of crimes and homicides. These kinds of homicides occurred mainly inside private houses; thus, this observation and the multiplicity of injuries show that female victims are physically less strong and subjected more to aggressive actions by their partners.

Moreover, in such cases, the multiplicity of blows indicates not only the will to kill by the offender but also the passionate intensity that accompanies the criminal act. Therefore, women are victims of murders that occur with particularly violent dynamics.

Our study shows an increase in homicides involving immigrants lower (+14%) than expected when compared with the massive increase (+115% from 2000 to 2014) of foreign residents in the city of Rome.

Firearms are still the most used weapon in voluntary homicide, but our study also shows an increase in the use of blunt and sharp instruments. We suppose that this observation is due to social changes, evolution in the crime type, and the effectiveness of enforced firearm regulations.

Understanding the homicidal phenomenon in all its components can be statistically and epidemiologically useful, but it can also allow to include each murder in a specific context and

characterize every single event. This collective data will be useful especially in those cases where at the time of the crime there is no circumstantial evidence useful to contextualize the homicide and to lead the investigation.

The possibility of distinguishing every murder through its immediately detectable features (number of wounds, injurious means, environment, etc.) can steer the investigation toward a specific direction and may help solve cases (42).

In conclusion, forensic pathologists must consider all epidemiological statistical knowledge about homicides during their examinations. The absence of analysis of all these data would implicate arbitrary and scientifically incorrect information to investigators.

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