Abstract

Violent deaths are examined to determine the cause and the manner of death. Homicidal victims referred to the two governorates departments of forensic medicine during a 5-year period from 2006 to 2010 were studied. Data of homicidal deaths was obtained from available medicolegal reports and statistically analyzed. The total number of postmortem examinations was 3235 in Gharbia, and 4233 in Qalubia; of these 9.2% and 8.8% were homicidal deaths respectively. The total incidence rate of homicidal deaths per 100,000 populations in Gharbia was (0.0092) and in Qalubia was (0.0088). The highest incidence of crimes in the two governorates occurred during summer months (41.4-48%), among family members (37.4-40.4%), took place outdoor (62.6-64.4%), and was among males (77.1-75.7%) in the age group 31-40 years (25.3-25.9%). Urban areas accounted for 61.5% in Gharbia and 68.2% in Qalubia. Victims were commonly unemployed in Gharbia (24.6%), while they were workers (24%) in Qalubia. Sharp, blunt and firearm weapons were commonly used in the two governorates. Stabbing was the most common cause of death in both Gharbia and Qalubia (40.7- 45.0%), and commonly occurred among males. Burn was more common among females while asphyxia was equally distributed in the two governorates. Defense wounds were recorded in 32.7% of homicidal deaths in Gharbia and 21% in Qalubia. In conclusion, the pattern of homicide in the two governorates was very similar.

Keywords: homicide, analysis, Gharbia, Qalubia, Egypt

INTRODUCTION

Homicidal crimes are as old as the existence of human civilization. Since time immemorial revenge, family feuds, anger, jealousy and other personal motives have been the precipitating causes for murder (Chattopadhyay & Sukul, 2013). Homicide is an undesirable facet of the civilized society. Medical examiners have long recognized
homicide-related trauma as one of the major public health problems of the world (Menezes et al., 2009).

Homicide is defined as the killing of one human-being by the act, procurement, or omission another; the term applies to all such killings whether criminal or not (Koehler & Brown, 2010). There has been a global increase in homicide, it causes over than 500,000 deaths per year worldwide (UNODC, 2011). The homicide statistics varies from country to country and region to region (Edirisinghe & Kitulwatte, 2009).

The patterns of homicide are useful indicators of the social stresses in a community (Nadanovsky & Cunha-Cruz, 2009). Study of the homicidal pattern in a society is one of the first steps in developing strategies to prevent it (Murad et al., 2006). Homicidal patterns can also provide valuable baseline information for other comparative studies as well as for monitoring of socio-pathological trends in the studied community (Bhupinde et al., 2010).

Gharbia and Qalubia are two Egyptian governorates situated at the middle of Nile delta with a population of 4,439,000 and 4,754,000 respectively (CAPMAS, 2012). The main population activity in Gharbia governorate is manufacturing, it is famous for its textile factories. Qalubia governorate is known for both agricultural and manufacturing population activity (Wikipedia, 2013).

There is an under-estimation of homicidal patterns in Egypt; few studies are available about the homicidal rate - based on the population number - and other characteristics of homicidal deaths. Therefore, this study was undertaken to determine and compare the pattern of homicidal deaths in Gharbia and Qalubia governorates.

Material and methods

This is a retrospective statistical comparative study that was carried out on cases of homicidal deaths, on which medicolegal autopsies were conducted, in Gharbia and Qalubia departments of forensic medicine – Ministry of Justice, Egypt, over a five-year period, from the beginning of January 2006 to the end of December 2010.

The study was authorized and approved by the local research ethics committee of Benha faculty of medicine, Benha University, and also by the authority of forensic medicine in the two governorates.

Data were sourced from autopsy reports that listed homicide as a manner of death. The incidence rates of homicidal deaths over the five years of the study were estimated and compared in the two studied governorates. The following data was studied:
1. **Demographic data:** victim’s age, gender, residence and occupation, season of homicide occurrence and homicide offender.

2. **Autopsy data:** scene of homicide, method of homicide (cause of death), type of weapon used, part of the body involved, defense wounds if any, medical intervention if any and toxicological analysis results if any.

**Statistical design:**

The collected data were tabulated and statistically analyzed using SPSS version 16 software package (SPSS Inc, Chicago, ILL Company). Data were presented as number and percentages. Chi square test ($X^2$) of significance was used, the accepted level of significance in this work was stated at 0.05 ($P<0.05$ was considered significant) (*Dawson & Trapp, 1994*).

**RESULTS**

1- **INCIDENCE:**

During the period of the study from year 2006 to year 2010, a total of 3235 cases received by Gharbia forensic medicine department, 297 (9.2%) were homicidal deaths and among a total of 4233 cases received by Qalubia forensic medicine department, 371 (8.8%) were homicidal deaths.

The incidence rate of homicidal deaths in two studied governorates was progressively increased over the years of study (2006-2010), as shown in Fig. (1).

![Figure (1): Line graph illustrating the incidence rates of homicidal deaths over the period of study from 2006 to 2010 among the two studied governorates.](image)

The total incidence rate of homicidal deaths per 100,000 populations in Gharbia was (0.0092) while in Qalubia (0.0088).
2. DEMOGRAPHIC RESULTS:

Age:

Most of homicidal deaths in the two studied governorates were in the age group (31-40ys), followed by the age group (21–30ys), as follows; (Gharbia 25.3%, 24.6% and Qalubia 25.9%, 23.7% respectively) and the incidence of homicidal deaths declines towards both extremes of age, these findings were statistically insignificant (p>0.05), as illustrated in Fig. (2).

Gender:

The majority of homicidal deaths were males in the two studied governorates; Gharbia (77.1%) and Qalubia (75.7%), females represented 22.9% in Gharbia and 24.3% in Qalubia, these results were statistically insignificant (p>0.05), as shown in Fig. (3).
Residence:

In Gharbia and Qalubia governorates, the majority of victims of homicidal deaths came from urban areas (61.5% and 68.2% respectively); these findings were statistically highly significant (p<0.001), as highlighted in Fig. (4).

![Figure (4): Bar chart highlighting the distribution of homicidal deaths according to residence among the two studied governorates.](image)

Season:

The majority of homicidal crimes occurred during summer months in Gharbia and Qalubia governorates; (41.4% and 48% respectively), these results were found to be statistically insignificant (p>0.05), as shown in Fig. (5).

![Figure (5): Bar chart showing the seasonal variation of homicidal deaths incidence among the two studied governorates.](image)
Victim occupation:

In Gharbia governorate the majority of homicidal deaths victims were unemployed (24.6%), while in Qalubia governorate the majority were workers (24%), these findings were statistically highly significant (p<0.001), as showed in Table (1).

Table (1): Distribution of homicidal deaths victims among the two studied governorates according to their occupation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Governorate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gharbia</td>
<td>Qalubia</td>
</tr>
<tr>
<td>Employee</td>
<td>No. (%)</td>
<td></td>
</tr>
<tr>
<td>Worker</td>
<td>45 (15.2%)</td>
<td>78 (21.0%)</td>
</tr>
<tr>
<td>Student</td>
<td>9 (3.0%)</td>
<td>18 (4.9%)</td>
</tr>
<tr>
<td>Housewife</td>
<td>53 (17.8%)</td>
<td>61 (16.4%)</td>
</tr>
<tr>
<td>Farmer</td>
<td>53 (17.8%)</td>
<td>62 (16.7%)</td>
</tr>
<tr>
<td>Others</td>
<td>27 (9.1%)</td>
<td>23 (6.2%)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>73 (24.6%)</td>
<td>40 (10.8%)</td>
</tr>
<tr>
<td>Total</td>
<td>297 (100.0%)</td>
<td>222 (100.0%)</td>
</tr>
</tbody>
</table>

$X^2=51.4$  $P<0.001^*$

Offender:

In the majority of homicides; victims were related to their offenders; (family members, friends and neighbors), with the highest incidence of crimes occurred among family members in the two studied governorates (Gharbia: 37.4% and Qalubia: 40.4%), these findings were statistically insignificant (p>0.05), as shown in Fig. (6).

Figure (6): Bar chart illustrating the distribution of homicidal deaths according to their offenders among the two studied governorates
3- AUTOPSY RESULTS:

Scene:

The majority of homicide crimes in the two studied governorates took place outdoor; Gharbia (62.6%) and Qalubia (64.4%), these results were found to be statistically significant (p<0.05), as illustrated in Fig. (7).

![Figure (7): Bar chart illustrating the distribution of homicidal deaths according to the scene of homicide among the two studied governorates](image)

Weapon:

The most common used weapon of homicide in the two studied governorates was sharp weapon {Gharbia (50.2%), Qalubia (54.7%)}, followed by blunt and firearm weapons, these findings were statistically highly significant (p<0.001), as illustrated in Fig. (8).

![Figure (8): Bar chart showing the distribution of the homicidal deaths among the two studied governorates according to the type of weapon](image)

Others = \{asphyxia, burn, malpractice and act of omission (infanticide)\}
**Method of homicide (cause of death):**

In Gharbia and Qalubia governorates the most common method of homicide was stabbing (40.7% and 45.0% respectively), these findings were statistically highly significant (p<0.001), as showed in Table (2).

**Table (2): Distribution of homicidal deaths among the two studied governorates according to the method of homicide (cause of death)**

<table>
<thead>
<tr>
<th>Method</th>
<th>Gharbia</th>
<th>Qalubia</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stab injury</td>
<td>121 (40.7%)</td>
<td>167 (45.0%)</td>
<td>288 (43.2%)</td>
</tr>
<tr>
<td>Head injury</td>
<td>78 (26.3%)</td>
<td>85 (22.9%)</td>
<td>163 (24.4%)</td>
</tr>
<tr>
<td>Firearm</td>
<td>30 (10.1%)</td>
<td>59 (15.9%)</td>
<td>89 (13.4%)</td>
</tr>
<tr>
<td>Cut throat</td>
<td>9 (3.0%)</td>
<td>25 (6.7%)</td>
<td>34 (5.2%)</td>
</tr>
<tr>
<td>Asphyxia</td>
<td>23 (7.7%)</td>
<td>23 (6.2%)</td>
<td>46 (6.9%)</td>
</tr>
<tr>
<td>Malpractice</td>
<td>13 (4.4%)</td>
<td>7 (1.9%)</td>
<td>20 (3%)</td>
</tr>
<tr>
<td>Poisoning</td>
<td>8 (2.7%)</td>
<td>2 (0.5%)</td>
<td>10 (1.5%)</td>
</tr>
<tr>
<td>Others</td>
<td>15 (5.1%)</td>
<td>3 (0.8%)</td>
<td>18 (2.7%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>297 (100.0%)</td>
<td>371 (100.0%)</td>
<td>668 (100.0%)</td>
</tr>
</tbody>
</table>

\[X^2 = 63.7 \quad P < 0.001^* \quad \text{others = burn & act of omission (infanticide)}\]

In the two studied governorates, homicides by stab injuries, head injuries, firearm injuries, cut throat, and poisoning were more common among males, meanwhile homicides due to medical malpractice, burn and act of omission (infanticide) were more common among females; but homicides by asphyxia were equally distributed between males and females. These differences were statistically highly significant (p<0.001), as illustrated in Table (3).

**Table (3): Relation between the method of homicide and gender of homicidal deaths among studied cases**

<table>
<thead>
<tr>
<th>Method</th>
<th>Gender</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Stab</td>
<td>43 (14.6%)</td>
<td>245 (85.4%)</td>
</tr>
<tr>
<td>Head injury</td>
<td>47 (28.7%)</td>
<td>116 (71.3%)</td>
</tr>
<tr>
<td>Firearm</td>
<td>12 (13.1%)</td>
<td>77 (86.9%)</td>
</tr>
<tr>
<td>Cut throat</td>
<td>14 (39.6%)</td>
<td>20 (60.4%)</td>
</tr>
<tr>
<td>Asphyxia</td>
<td>23 (50.0%)</td>
<td>23 (50.0%)</td>
</tr>
<tr>
<td>Malpractice</td>
<td>16 (81.0%)</td>
<td>4 (19.0%)</td>
</tr>
<tr>
<td>Poisoning</td>
<td>2 (21.4%)</td>
<td>8 (78.6%)</td>
</tr>
<tr>
<td>Others</td>
<td>10 (57.1%)</td>
<td>8 (42.9%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>167 (25.0%)</td>
<td>501 (75.0%)</td>
</tr>
</tbody>
</table>

\[X^2 = 108.0 \quad P < 0.001^* \quad \text{others = burn, act of omission (infanticide)}\]
Site of injury:

In Gharbia governorate, the head was the most common site of injury (27.9%), while the chest was the most common site of injury in Qalubia governorate (34.2%). These results were found to be statistically highly significant (P<0.001), as showed in Table (4).

Table (4): Distribution of homicidal deaths among the two studied governorates according to the site of injury

<table>
<thead>
<tr>
<th>Site of injury</th>
<th>Gharbia</th>
<th>Qalubia</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chest</td>
<td>79 (26.6%)</td>
<td>127 (34.2%)</td>
<td>206 (30.8%)</td>
</tr>
<tr>
<td>Head</td>
<td>83 (27.9%)</td>
<td>102 (27.5%)</td>
<td>185 (27.7%)</td>
</tr>
<tr>
<td>Neck</td>
<td>43 (14.5%)</td>
<td>53 (14.3%)</td>
<td>96 (14.4%)</td>
</tr>
<tr>
<td>Abdomen</td>
<td>38 (12.8%)</td>
<td>25 (6.7%)</td>
<td>63 (9.4%)</td>
</tr>
<tr>
<td>Axilla</td>
<td>6 (2.0%)</td>
<td>2 (0.5%)</td>
<td>8 (1.2%)</td>
</tr>
<tr>
<td>Thigh</td>
<td>7 (2.4%)</td>
<td>18 (4.9%)</td>
<td>25 (3.7%)</td>
</tr>
<tr>
<td>Back</td>
<td>9 (3.0%)</td>
<td>7 (1.9%)</td>
<td>16 (2.4%)</td>
</tr>
<tr>
<td>Multiple</td>
<td>32 (10.8%)</td>
<td>37 (10.0%)</td>
<td>69 (10.4%)</td>
</tr>
<tr>
<td>Total</td>
<td>297 (100.0%)</td>
<td>371 (100.0%)</td>
<td>668 (100.0%)</td>
</tr>
</tbody>
</table>

X²= 65.7 P<0.001*

Defense injury:

Defense wounds were noted in 32.7% of homicidal deaths in Gharbia governorate and 21% in Qalubia governorate, these results were found to be statistically significant (p<0.05), as highlighted in Fig.(9).

Figure (9): Bar chart showing the distribution of homicidal deaths according to the defense injuries among the two studied governorates
DISCUSSION

The pattern of homicides varies from country to country and is influenced by many factors; social, moral, political and cultural influences as (age, sex, religion, ethnicity, literacy, poverty, over-population, unemployment, impunity, etc.), and the availability of weapons (Martin et al., 1999, Kumar et al., 2005 and Vij et al., 2010). Brookman & Maguire (2004) stated that the pattern of homicide has important implications for the creation of strategies to reduce its incidence.

The present study showed a progressive increase in the rate of homicidal deaths among the total medicolegal examinations conducted during the period of the study from 2006 to 2010 in the two studied governorates, with the maximum rate occurring in year 2010.

These results are in agreement with Vij et al. (2010) who found an increasing rate in homicidal deaths during a five-year retrospective study between 2001 and 2005 at Mangalore, South India, and they attributed this rising trend of homicide rate to increasing population, industrialization, easy availability of weapons, changing life styles and stressful living conditions.

Meanwhile Kumar et al. (2005) in their study of homicidal death in Kuala Lumpur found that throughout the five-year study period from year 1999 to 2003, the number of homicidal deaths was fairly constant with the maximum number of cases occurring in 2001.

On the other hand Temlett & Byard (2012) in their study of homicides in South Australia over a 40-year period from 1969 to 2008 found that the rate of homicide declined markedly from 155.4 to 73.5 per 100,000 per decade, and they stated that the reasons for this decline were unclear, although restricted sales of alcohol in traditional communities may have had some effect in reducing violent crimes.

The present study showed that the total incidence rates of homicidal deaths per 100,000 populations in Gharbia governorate was 0.0092 and Qalubia governorate was 0.0088. These rates are considered to be much lower than the global rates, as in Dammam, Saudi Arabia (2006-2010) Madadin et al. (2011) found that the average annual homicide rate was 1.49 per 100,000 people and in the West of France (2000 – 2003) Saint-Martin et al. (2006) found that the average homicide rate was 1.55 per 100,000 persons.

Also, many other studies of homicides showed high rates in comparison to the present study, as in Japan it was 0.75–1/100,000 persons (Hiraiwa-Hasegawa, 2005). In
Abbottabad, Pakistan homicides showed a rate of 4.22/100,000 (Hassan et al., 2005), meanwhile in Cape Town, South Africa it was 57/100,000, one of the highest homicide rates in the world (Duflou et al., 1988).

As regard victim’s age distribution, there were insignificant differences (p>0.05) between the two studied governorates, as most of homicidal deaths were in the age group (31-40ys) followed by age group (21–30ys) as follows; (Gharbia 25.3%, 24.6% and Qalubia 25.9%, 23.7% respectively) and the incidence of homicidal deaths declines towards both extremes of age.

These results are in agreement with Edirisinghe & Kitulwatte (2009) who confirmed that the majority (69%) of the homicidal victims was in the prime of their life i.e. between 20 and 40 years. Mohanty et al. (2007) found that almost two-thirds (66.6%) of the homicidal victims were in the age group 21–40 years, revealing that the peak age of homicide is in the 3rd and 4th decades. Also, Scott (1990), Ghangale et al. (2003) and Gupta et al. (2004) in their study of homicidal death found that most of the victims belonged to the third decade of their life (21–30 years).

Fernandez & La Harpe (1996) stated that it was not surprising that the 3rd and 4th decades of life are the most common age group of homicide, as this age group is the most exposed to violent trauma by the nature of its life style.

In contrast, Vougiouklakis & Tsiligianni (2006) in their study of homicide in North-West Greece (1998-2005), found that the majority of victims were above the age of 60 years (31.0%). Also, Saint-Martin et al. (2006) confirmed that the homicidal victims in the age group of (50–59 years) were the most frequent.

Men are more commonly the victims of homicide, perhaps as they are generally working outdoors and are more exposed to stress, frustrations, physical confrontation and violence. Nevertheless women often become victims of domestic homicides due to physical disadvantage and incapability of resistance to violence (Milroy & Ranson, 1997 and Kumar et al., 2006).

In the present work, the overwhelming majority of the homicidal deaths in the two studied governorates were males; Gharbia (77.1%), and Qalubia (75.7%), these results were found to be statistically insignificant (p>0.05). This was in agreement with Edirisinghe & Kitulwatte (2009) who confirmed in their study of homicide in Sri Lanka (2005- 2006) that males were predominantly represented (94%) with a male to female ratio of 16:1. Also, these results were in agreement with relevant studies of homicide in different parts of the world, that confirmed prevalence of the male victims; London: 66%
(Hendersen et al., 2005), Turkey: 83% (Hilal et al., 2005), India: 79% (Mohanty et al., 2005), Bangladesh: 75% (Islam & Islam, 2003). This was previously explained by Nordrum et al. (1998) and Hougen et al. (1999) who concluded that males by nature indulge in more violent activities compared to females who are less prone to a violent death.

Most of homicidal victims in Gharbia and Qalubia governorates came from urban areas (61.5% and 68.2% respectively); these findings were statistically highly significant (p<0.001). These results were in accordance with those achieved by Martin et al. (1999) who concluded that violence in all its forms especially homicides, has been increasing in the large urban centers of South America. Chattopadhyay & Sukul (2013) stated that rapid increase in population, urbanization and industrialization has led to an increase in the incidence of homicide.

In the present work most of homicidal crimes occurred during summer months in the two studied governorates; (Gharbia 41.4% and Qalubia 48%), these results were found to be statistically insignificant (p>0.05). These results are in agreement with Madadin et al. (2011) who found that the highest number of homicides was in summer months (52%). Another study in Washington, D.C. (2001-2005) revealed an increase in the homicide’s peak during hot summer months (Metropolitan Police Department, Washington DC, 2009). On the other hand Vougiouklakis & Tsiligianni (2006) confirmed that the maximum number of homicidal victims died during the winter (34.6%). Also Dikhit et al. (1986) in their study revealed that the most common season for homicide was the winter.

Most of homicidal victims in Gharbia governorate were unemployed (24.6%), while the majority in Qalubia were workers (24%), these findings were statistically highly significant (p<0.001). Kumar et al. (2005) found that most of homicidal victims were laborers and workers (71.9%), and they revealed that to the lack of financial means faced by these victims contributed towards their involvement in violent activities. On the other hand Martin et al. (1999) and Mohanty et al. (2005) confirmed that unemployment is an important factor for drug consumption, increasing violence and commission of crimes.

This study highlighted that the majority of homicidal victims were related to their offenders in some way (family members, friends or neighbors), with the highest incidence of crimes occurred among family members in the two studied governorates; {Gharbia (37.4%), and Qalubia (40.4%)}, these findings were statistically insignificant (p>0.05). These results are in accordance with Saint-Martin et al. (2006) who found that
52% of the homicidal victims knew their assailant and majority of them were family members. Also, *Vougiouklakis & Tsiligianni (2006)* confirmed in their study of homicides that acquaintances and close-blood relatives found to be the most common victims of homicide (44.8%).

The majority of homicidal crimes in the two studied governorates occurred outdoor; Gharbia (62.6%) and Qalubia (64.4%), these results were found to be statistically significant (p<0.05). These results are in agreement with *Vougiouklakis & Tsiligianni (2006)* who confirmed that most homicides took place outside in a deserted area or close to agricultural side (41.3%). On the other hand *Karlsson (1998)* found that majority of homicides (41%) took place in the victim’s home.

Weapons of homicide differ from nation to nation, for example in the United States (US); firearms are the most common. This is in contrast with the South Asian countries where the most preferred choices are blunt and sharp weapons (*Tardiff et al., 1986* and *Agnihotri et al., 1999*). Legislation may influence the prevalence of certain weapons of homicide especially firearms such as in the United Kingdom and Australia (*Henderson et al., 2005* and *Byard et al., 2009*).

The most common used weapon of homicide in the two studied governorates was sharp weapon; Gharbia (50.2%) and Qalubia (54.7%), followed by blunt and firearm weapons, these findings were statistically highly significant (p<0.001). This was in agreement with *Temlett & Byard (2012)* who confirmed that the most common weapons of homicide in Australia involve sharp force trauma (47%), blunt force trauma (31%) and firearms (10%). Also, *Ghangale et al. (2003)* found that the commonest weapon of homicide was sharp trauma (49.4%) followed by blunt trauma (34.8%). On the other hand *Madadin et al. (2011)* showed that blunt trauma homicidal deaths were the most common (35.2%), followed by sharp trauma (34.4%). While *Edirisinghe & Kitulwatte (2009)* illustrated that there were increasing trends of using firearms for homicides, as almost one third (31%) of homicides were due to firearm injuries. Also, *Bashir et al. (2005)* and *Hussain et al. (2006)* in their study of homicides in Pakistan confirmed that the percentage of firearm homicides was between 60% and 90% of all homicides.

Various studies have stated that stabbing, blunt-force trauma especially blunt head injury, shooting, and asphyxia are the four commonly used methods of homicide (*Scott, 1990* and *Saint-Martin et al., 2006*).

According to the present work, the most common method of homicide in Gharbia and Qalubia governorates was stabbing (40.7% and 45.0% respectively), these
findings were statistically highly significant (p<0.001). These results are in accordance with Mohanty et al. (2005) who confirmed that stabbing and cutting were the most common methods used for homicide (37.7%). Also, Lo et al. (1992) and Nordrum et al. (1998) confirmed that stab injury was the most frequent cause of death in cases of homicide. Meanwhile Vij et al. (2010) in their study of homicides in Mangalore, South India, found that fatal head injuries were the commonest cause of death (39.3%).

On the other hand, Preti & Miotto (2000) reported that the majority of homicidal deaths were due to firearm injuries (41.1%), followed by stabbing and cutting injuries (31.0%). Also, Cardona et al. (2005) confirmed that in Latin American countries and the US the majority of homicidal deaths were due to firearm injuries.

The present study showed that homicides by stab injuries, head injuries, firearm injuries, cut throat, and poisoning were more common among males, meanwhile homicides due to medical malpractice, burn and infanticide were more common among females, but homicides by asphyxia were equally distributed between male and female cases, in the two studied governorates, these differences were statistically highly significant (p<0.001).

Temlett & Byard (2012) in their study of homicides among Indigenous Australians confirmed that males suffered more than double the numbers of lethal sharp force trauma, and more than 10 times the number of firearm deaths compared to females, while numbers of blunt force trauma deaths were similar (M:F= 1:1). On the other hand Vij et al. (2010) found that homicidal deaths due to sharp, blunt and firearms injuries were more common among males, meanwhile strangulation, burn and infanticides were predominated among females.

In the present study the head was the most common site of injury among homicidal victims in Gharbia governorates (27.9%), while in Qalubia it was the chest (34.2%), these results were found to be statistically highly significant (p<0.001). These results are supported by Madadin et al. (2011), Adeagbo et al. (2008) and Karlsson (1998); they revealed that the most common body sites injured in homicide were the chest and the head. Meanwhile Pal et al. (1994) in their study of homicidal deaths found that the head and multiple wounding were the commonest finding sites of injury.

Defense wounds are not uncommon upon the victims of homicide. They reflect anticipation of injury and an attempt to ward off the harm. Absence of defense wound does not exclude homicide since the victim might be incapable of effective defense for reason such as element of surprise; unconsciousness (Mohanty et al., 2007). Defense
injuries can be in the form of abrasions, contusions, lacerations, fractures and dislocations in the case of blunt weapon assaults and incised, stab and chop injuries in the case of sharp weapon assaults (Hugar et al., 2012).

Defense wounds were noted in 32.7% of homicidal deaths victims in Gharbia governorate and 21% in Qalubia governorate, these differences were statistically significant (p<0.05). These results were in agreement with Singh & Gupta (2007) who found that defense injuries were noted in a low percentage of homicidal victims (29.12%), also, Mittal et al. (2007) reported the incidence to be 36%. On the other hand Chattopadhyay & Sukul (2013) confirmed that defense wounds were noted in 48% of the homicidal victims. Also, Mohanty et al. (2005) reported defense wounds in 46% of the homicidal victims.

Most of homicidal victims in the two studied governorates died in the crime scene with no medical intervention; Gharbia: (81.1%) and Qalubia: (85.4%), these results were found to be statistically insignificant (p>0.05). This was in accordance with Madadin et al. (2011) who found that only 31% of the cases were hospitalized for medical intervention before dying, while the majority of them died at the crime scene.

It is important to study poisoning related homicidal deaths. Homicide has not traditionally featured prominently in fatal poisoning statistics (Flanagan & Rooney, 2002). In Gharbia and Qalubia, post mortem toxicological analysis was negative among the vast majority of homicidal victims (97.3%, 97.8% respectively), these findings were statistically insignificant (p>0.05). Madadin et al. (2011) found that post mortem toxicological analysis was positive in only 13.1% (8% for alcohol, 3% for amphetamine, and 2.1% for opiates) and the majority of homicidal victims (86.9%) showed negative toxicological results.

In the present work, carbamates were detected in the blood of most of homicide victims, in whom toxicological analysis was positive, in the two studied governorates. In contrast Tardiff et al. (1986) confirmed that alcohol and other drugs of abuse were frequently detected in the blood and tissues of homicide victims. Also, Gill & Catanese (2002) confirmed that ethyl alcohol was detected in the blood of most of homicide victims in the US (62.9%). This different distribution in toxic results may be attributed to religious and cultural background, because alcoholic beverages are prohibited in our country.

Conclusion
The current study concluded that:
Pattern of homicidal deaths in the two studied governorates was very similar, as the majority of homicidal victims in both governorates were males, aged from 31 to 40 years, commonly related to their offenders (family members). Homicidal crimes commonly caused by sharp weapons, occurred during summer months, and in outdoor.

Meanwhile, some differences were noted as regard victim’s occupation and the site of injury.

Post mortem toxicological analysis and autopsy should be done for all homicides.

ACKNOWLEDGMENT

Our deep gratitude and thanks to all staff members in Gharbia and Qalubia forensic medicine departments - Ministry of Justice, Egypt, for their great help and cooperation in collection of data for this study. Lastly we would like to extend our thanks to all of the staff members in faculty of medicine, Benha University, for their help & cooperation. www.fmed.bu.edu.eg

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