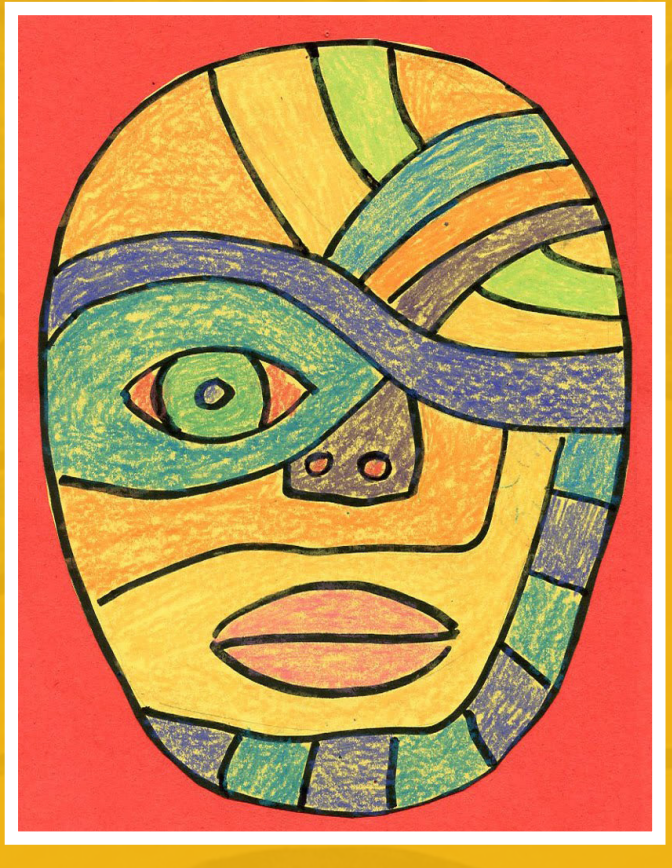
WHO-EM/HLP/067/E

Injury surveillance:
a tool for decision-making



Annual injury surveillance report Egypt, 2009

World Health Organization
Regional Office for the Eastern Mediterranean

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Contents

Foreword

Injuries, unintentional or intentional, constitute a major public health problem, killing more than 5 million people worldwide each year and causing many more cases of disability. People from all economic groups suffer fatal injuries, but death rates due to injury tend to be higher in those in the lower income groups. The poor are also less likely to make a full recovery following an injury. In the Eastern Mediterranean Region, more than 400 000 people die from different causes of intentional and unintentional injuries every year.

Historically, injuries have been neglected as a public health problem, largely because they were viewed as the result of "accidents" or random events. Today, however, injuries are known to be preventable. The use of seat belts, car seats for children, designated drivers, fencing around water areas, flame-resistant clothing and smoke detectors, together with early childhood education and family counselling to prevent violence have all proved to be effective measures for preventing injuries.

To date, injury prevention has tended to be an issue only in wealthier countries. However, the highest rates of death and permanent disability due to injury are currently found in the poorer nations. It is these countries therefore that have the most urgent need for prevention strategies that are appropriate, cost-efficient and effective. In this context, "appropriate" means taking into account the complexities of the problem, the availability of resources and, furthermore, what strategies have been shown to work elsewhere.

To develop effective prevention strategies, most countries need better information. In particular, countries need to know about the numbers and types of injuries that occur and about the circumstances in which those injuries occur. Such information will indicate how serious the injury problem is, and where prevention measures are most urgently needed. To support the making of informed decisions for injury prevention and control, WHO Regional Office for the Eastern Mediterranean and WHO Country Office Egypt has been working with the Ministry of Health of Egypt to establish an injury surveillance system since 1999. The injury surveillance system has now evolved to the extent that it covers almost all causes of injuries (and the resultant deaths and disabilities) and the various facets of its causative reasons. Covering just a few Ministry of Health hospitals in 1999, the injury

surveillance system now covers all the hospitals run by the Ministry of Health, as well as most of the university hospitals across all governorates in the country. This has been a remarkable achievement on the part of the Ministry of Health and the concerned department within the Ministry. The Regional Office takes pride in partnering in this venture.

It gives me great pleasure to share with you this comprehensive annual report of injury surveillance in Egypt for 2009. In addition to providing the necessary evidence to policy-makers for planning and decision-making, the surveillance system is also aimed at researchers and practitioners of injury prevention and surveillance, for whom it provides a practical example of how to develop information systems for the collection of systematic data on injuries. This report is the result of collaboration between experts from WHO and the Ministry of Health, Egypt who work, or have worked, in settings where resources, including trained staff and electronic equipment, are limited.

I am confident that the injury surveillance system of Egypt will continue to improve both in quality and scope and will continue to provide guidance for decision-making.

Hussein A Gezairy MD FRCS

WHO Regional Director for the Eastern Mediterranean Region

Acknowledgements

This publication is the result of the efforts and contributions of many people. The publication was written by Rania Saad, Ministry of Health focal point for violence and injury prevention. It was revised by Nasr El Sayyed, Assistant Under-Secretary for Health, Ministry of Health Egypt, Mohammad Hafez, Director of Occupational Health, Ministry of Health Egypt and Syed Jaffar Hussain, WHO Regional Office for the Eastern Mediterranean. Technical contributions were also received from the heads of Ministry of Health hospitals in Egypt including the Emergency Care Departments, and Hala El Hennawy from the WHO Country Office, Egypt.

1. Injury surveillance in Egypt

Injury is defined as "any body lesion due to an external cause, either intentional or unintentional, resulting from a sudden exposure to energy (mechanical, electrical, thermal, chemical or radiant) generated by an agent–host interaction" (*1*).

Injury surveillance, defined as systematic collection, analysis, interpretation and dissemination of data, along with feedback and action, is an essential component of injury prevention. If well implemented, it can provide information on the burden and magnitude of the problem, injury patterns and profiles, major characteristics of injured and killed persons, risk factors, and patterns of care and outcome. Injury surveillance data will be useful in recognizing the public health impact of the problem, the prioritization process, resource allocation, capacity development, monitoring the impact of interventions, and stimulating further research.

In 1993, a national review was carried out to assess the problem of injuries in Egypt. This in-depth review involved a technical working group from the Occupational Health Department and Emergency Care Department in the Ministry of Health, academics and experts from the Centers for Disease Control and Prevention, USA.

In 1996, a ministerial decree established the Injury Control Unit under the organization of the Occupational Health Department. In 1999, an injury surveillance system was implemented. Its main objectives were: to assess the contribution of injuries in general to the overall burden of disease in Egypt; to determine the incidence and characteristics of a particular type of injury; to identify populations at high risk from particular injuries; to identify areas where intervention is needed; and to provide data that are critical in making good management decisions.

The injury surveillance system in Egypt is decentralized. Injuries are reported by the reporting facilities (hospitals, health centres, health groups and health units). Injury data are collected on the injury reporting form and the data are entered electronically. The entered data are sent to district health information centres where there is a quality control feedback mechanism. District health information centres then send the revised data to the Directorate health information centre, which has the same feedback mechanism, where it is finally revised and sent to the Injury Control Unit in the Ministry of Health (Figure 1).

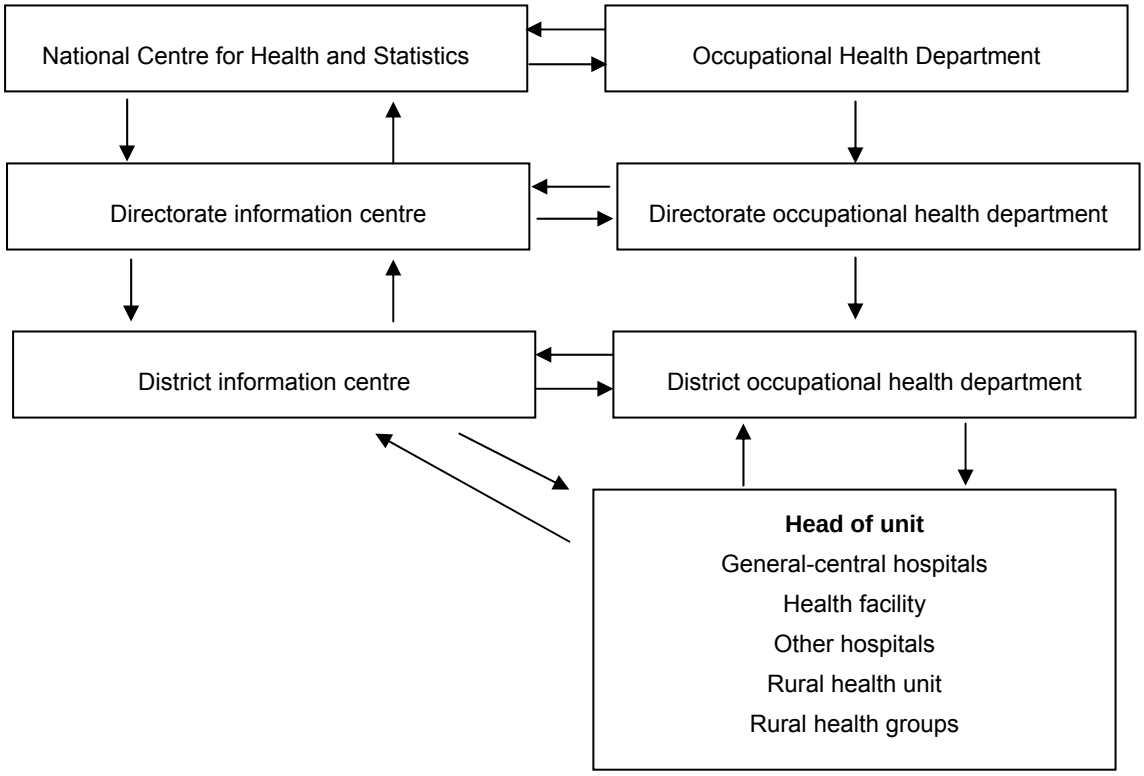

Figure 1. Feedback system

The injury reporting form was adapted in 2009 to cope with the reclassification of the injury surveillance system using the International Classification of Diseases, Tenth Revision (ICD-10). The form includes the injured person's demographics (identity, name, age, sex, occupation, address of residence and address of occurrence of injuries). Place, activity during the injury and type of injury (either intentional or unintentional) are included. The ICD-10 classifications are included in two categories in the form: the external cause of injury and the diagnosis. Medical services and outcome of the injury are also included (Figure 2).

Injury report form

Governorate---------- **District----------** **Facility----------**

Ambulance No---------- **Date of Entry** ☐☐ ☐☐ ☐☐☐☐

Name :- **----------** **Injured IDNO----------**

Address of residence:-

Governorate---------- **District----------**

Address ---------- **Tel----------**

Location of Injury:- Governorate---------- **District----------**

Address ----------

Demographic Information:-

Age:- ☐☐ ☐☐ Sex Male□ Female□

Occupation----------

Occupational state:- Working□ Not working□ Student□ Child□ Home duties □

Place of injury:- Street□ Home □ Work□ Farm□ Educational □ Health care □ Athletic □
Water source □ Commercial □ Industrial □ Other---------- Unknown □

Activity during injury:- Rest □ Work □ Education □ Leisure □ Sport □ Other----------

Type of injury:- Intentional □ Unintentional □ Maltreatment □ Sexual assault □ Unknown □

Affected bodily site
Head □
Neck □
Chest □
Abdomen & Pelvis □
Shoulder and arm □
Hand □
Upper limb unspecified □
Hip □
Lower limb □
Lower limb unspecified □
Eye □
Ear □
Other organs □
Respiratory□
Gastrointestinal□
Urinary □
Skin □
Multiple parts □
Feet □
Unspecified □

Diagnosis
Superficial injury □
Open wound □
Fracture □
Joint dislocation □
Nerve injury □
Muscle injury □
Organ injury □
Amputation □
Other □

Outcome
Treated and discharged □
Admission □
Discharged by patient request □
Death □
Transfer□
Place of transfer ----------
Cause of transfer ----------
Other----------

External cause of injury
Road traffic injury Car □ Pedestrian □ Bicycle □ Motorcycle □ Bus □ Train □ Lorry □ Heavy truck □ 3 wheeled vehicle □ Other □
Chemical poisoning □
Drug or food poisoning □
Fall □
Explosions □
Drowning □
Sharp object □
Heavy object □
Animal bite □
Burns: Fire burn □ Chemical burn □ Scald burn □ Radiation burn □ Electrical burn □
Physical injury □
Other ----------

Medical services
Sutures □
Neck □
Chest □
Abdomen and pelvis □
Shoulder and arm □
Hand □
Upper limb unspecified □
Hip □
Lower limb □
Lower limb unspecified □
Eye □
Ear □
Other organs □
Respiratory□
Gastrointestinal□
Urinary □
Skin □
Multiple parts □
Feet □
Unspecified □

Any other details:

Figure 2. Injury reporting form (translation)

استمارة حصر الإصابات

محافظة---------- **ادارة**---------- **مستشفى**----------

تاريخ الدخول ☐☐ ☐☐ ☐☐☐☐

تاريخ الخروج ☐☐ ☐☐ ☐☐☐☐

رقم بلاغ الاسعاف----------

اسم المصاب:----------

محل الاقامة :- محافظة---------- **ادارة**---------- **العنوان**---------- **تيلفون**----------

محل وقوع الاصابة:- محافظة---------- **ادارة**---------- **العنوان**----------

البيانات الديموجرافية:-

العمر:- ☐☐ ☐☐ **النوع:-** ذكر☐ انثى☐

المهنة:---------- **الحالة المهنية:-** طفل☐ طالب☐ لايعمل☐ يعمل☐ اعمال منزلية☐

مكان حدوث الاصابة :- الشارع☐ المنزل☐ مكان رياضى☐ مكان تعليمى☐
الحقل☐ العمل☐ مكان صناعى☐ مكان تجارى☐
اخرى ----------

النشاط عند حدوث الاصابة:- الراحة☐ الرياضة☐ الدراسة☐ العمل☐ ترفيهى☐ اخرى----------

نوع الاصابة :- ادعاء متعمدة☐ ادعاء غير متعمدة☐ ادعاء سوء معاملة☐
ادعاء اعتداء جنسى☐ غير معلوم☐ اخرى----------

التشخيص الاولى
اصابة سطحية ☐
جرح مفتوح ☐
كسر ☐
خلع بالمفاصل ☐
اصابة للاوردة و الشرايين ☐
اصابة للعضلات ☐
اصابة اعضاء داخلية ☐
بتر ☐
اخرى ----------

السبب الخارجي للإصابة
اصابات الطرق
سيارة ☐
مشاة ☐
دراجة ☐
موتوسيكل ☐
اوتوبيس ☐
قطار ☐
لورى ☐
وسيلة نقل ثقيلة ☐
وسيلة نقل ذات 3 عجلات ☐
اخرى----------
تسمم كيميائى ☐
تسمم دوائى او غذائى☐
السقوط من علو☐
الاعتداءات☐
انفجارات ☐
الغرق ☐
الة حادة ☐
جسم صلب ☐
عقر حيوان ☐
الحروق:
حرق نارى ☐
حرق كيميائى ☐
حرق سلقى ☐
حرق اشعاعى ☐
صعق كهربى ☐
اصابة فيزيائية ☐
اخرى----------

الخدمة الطبية المقدمة
غرز و غيار☐
جبيرة ☐
غسيل معدة ☐
اشعة ☐
ادوية و علاج و امصال ☐
عمليات صغرى ☐
عمليات كبرى ☐
تحت الملاحظة ☐
تقرير طبى ☐
اخرى ----------

الجزء المصاب بالجسم
الراس ☐
العنق ☐
الصدر ☐
البطن و الحوض ☐
الكتف و الذراع ☐
اليد ☐
الجزء العلوى غير محدد ☐
الفخذ ☐
القدم و الركبة ☐
الساق السفلى غير محدد ☐
العين ☐
الاذن ☐
اعضاء داخلية اخرى ☐
الجهاز التنفسى ☐
الجهاز الهضمى ☐
الجهاز البولى ☐
الجلد ☐
غير محدد☐

نتيجة الاصابة
عولج و خرج ☐
دخول ☐
خروج حسب طلب المريض ☐
وفاة ☐
تحويل ☐
مكان التحويل ----------
سبب التحويل ----------
اخرى ----------

كيفية حدوث الاصابة:-

Figure 2. Injury reporting form (original)

2. National scale of injuries

In 2007, a national review of injury burden and impact was carried out to identify injury burden, pattern and distribution, based on a review of national injury surveillance data combined with a review of the literature available in the public domain. This national review included important recommendations to strengthen injury surveillance in Egypt.

According to health information systems information, there were nearly 20 000 deaths and 800 000 reported injuries (a ratio of 1:40) in Egypt in 2008 (Annex 1 and 2). In 2005, there were 16 245 deaths, 112 982 hospitalizations and 748 686 emergency room registrations due to injuries. This shows an increase of nearly 4000 deaths per year between 2005 and 2008.

As discussed in the national review report, the coverage was only one third of institutions (mainly government institutions) for injury surveillance. The ratio of deaths:serious injuries:hospitalizations was 1:7:46. Review of some independent studies, discussions with authorities and researchers, and the burden of injury report for Egypt reveal that the injury burden is several times higher due to underreporting and misclassification (especially of deaths, as injury causes are not documented clearly). The extent of underreporting is difficult to quantify, owing to non-availability of data from different sources in a single place and limited research. A verbal autopsy study in 1993 estimated that the injury mortality rate was 50.8/100 000, while official rates were 18/100 000 for the same year, signifying that injuries in Egypt are a "hidden epidemic". Based on available data, it was estimated that there were 30 000 deaths, 800 000–1 000 000 hospitalizations and 2 000 000 minor injuries in Egypt in 2007 (Figure 3).

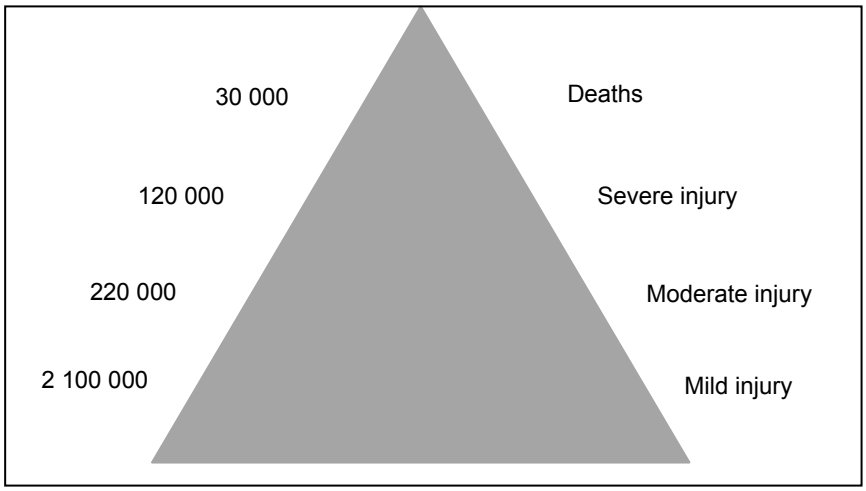

Figure 3. Injury pyramid, Egypt, 2007

The report also revealed that present injury information systems were associated with underreporting and/or misclassification of injury deaths (probably > 50%), as revealed by the fact that injuries accounted for only 3.7% of total deaths. Injury surveillance programmes included only 30–40% of total injuries. There was an increase in emergency room registrations for injuries in all governorates from 446 605 in 2000 to 779 837 by 2006. Young adults and men accounted for three quarters of injuries. The major causes of injury were violence/assault, falls, road traffic injuries, burns, poisoning and work-related injuries, with variations in age groups, gender and urban–rural areas. In road traffic injuries and deaths, car occupants outnumbered other categories of road users while independent studies showed that pedestrians were at greater risk. Head and limb injuries were seen in high numbers in road crashes, falls and work-related injuries. Nearly 20% of injured persons were hospitalized and deaths in the emergency room accounted for 1–2% of total deaths. Information on potentially modifiable risk factors, such as the nature, type, severity and outcome of injuries, was not available. The very limited data on economic impact did not permit larger extrapolations and generalizations.

With the need to increase understanding of the burden of injuries in Egypt, a population-based household survey was conducted in 2009. The objectives were to identify: a) the injury burden in terms of mortality and morbidity; b) the pattern and characteristics of injuries; and c) the impact of injuries on affected individuals. During March–June 2009, data were collected from five governorates, covering 11 118 households and 47 797 individuals. Through a three-stage random sampling method, the survey population was identified, based on probability proportional to size.

The survey findings reveal that:

- Injury accounts for nearly 20% of total deaths. For every injury death due to injury, nearly 15 injured persons require hospital admission and 48 require emergency care services (ratio 1:15:50).

- An estimated 30 000 persons lose their life due to an injury, with hospitalization of 350 000 persons every year.

- The highest number of these deaths and injuries occurs among men in the age group 15–44 years.

- Many families thus lose a son or father, which affects the psychosocial and economic growth and development of households.

- Significant variation in injury burden and pattern exists among governorates and is linked to socioeconomic situation, motorization, safety mechanisms and other factors.

- Road traffic injuries are a leading cause of death and hospitalization in Egypt (nearly 21 000 deaths every year), especially among men. Among women, falls are the leading cause of death, followed by road traffic accidents.

- Within road traffic accidents, pedestrians and car occupants account for nearly 80% of deaths and hospitalizations, followed by bicyclists and motorcycle riders. Collisions between pedestrians and car drivers are the commonest pattern of injury.

- Use of protective devices, such as helmets, seat belts and child restraints, was found to be very low among killed and injured persons, indirectly reflecting current usage levels in the country.

- Speed appears to be a major risk factor and a common contributor to collisions; mechanisms to address this issue require strengthening.

- Fall injuries are common among women and found to occur in homes.

- Burns also contribute to mortality and morbidity, usually caused by household products such as hot liquids.

- Workplace injuries are the third leading cause of death and hospitalization, with hitting by mechanical objects the commonest pattern.

- Even though intentional injuries such as assaults and suicides are frequent (as reported in focus group discussions), the survey did not capture them in direct interviews with respondents.

- Nearly 20% of injured persons require hospital admission and one in four of these returns home with varying levels of disabilities.

- The impact of injuries is huge. Work status and productivity declines by half (among injured) and unemployment and part-time employment doubles 6–9 months after injury.

- The majority of injured persons incur out-of-pocket expenditure to meet the direct and indirect costs of injury.

3. Morbidity due to injuries

3.1 Leading causes

In 2009, 746 138 injury cases were registered from Ministry of Health hospitals, of which 71.01% were males and 28.9% were females (Figure 4). Table 1 shows the leading external causes of injury 2005 to 2009. Road traffic injuries, ranked as the 5th leading cause (10.2%) in 2005, became the 4th leading cause in 2008. In 2009, due to improved use of ICD-10 classification, road traffic injuries constituted the third leading cause of injury (12.87%) in the hospital-based surveillance system.

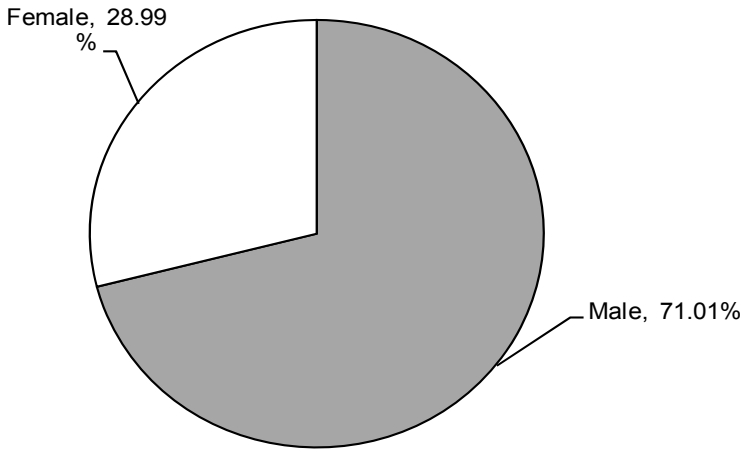

Figure 4. Percentile distribution of injuries according to sex, 2009

Table 1. Leading causes of injury 2005–2009

Year	1st leading cause of injury	2nd leading cause of injury	3rd leading cause of injury	4th leading cause of injury	5th leading cause of injury	6th leading cause of injury	7th leading cause of injury
2005	Assault/fight (22.2%)	Fall (18.8%)	Animal bite (13.35%)	Sharp object (11.97%)	Road traffic injury (10.2%)	Poisoning (8.3%)	Needle stick injury (5.83%)
2006	Assault/fight (24.15%)	Fall (18.3%)	Animal bite (12.9%)	Sharp object (12.5%)	Road traffic injury (9.77%)	Poisoning (8%)	Needle stick injury (5.5%)
2007	Assault/fight (23.77%)	Fall (18.85%)	Animal bite (12.46%)	Sharp object (12.43%)	Road traffic injury (11.07%)	Poisoning (7.04%)	Needle stick injury (4.96%)
2008	Assault/fight (24.86%)	Fall (19.26%)	Sharp object (12.10%)	Road traffic injury (12.07%)	Animal bite (11.54%)	Poisoning (7.25%)	Needle stick injury (4.25%)
2009	Fall (20.12%)	Assault/fight (18.59%)	Road traffic injury (12.87%)	Sharp object (12.33%)	Animal bite (11.6%)	Needle stick injury (8.52%)	Poisoning (5.44%)

3.2 Age distribution

The highest distribution of injuries occurred in ages 20 years to less than 30 years, with a decline with increasing age (Figure 5). A total of 63.89% of injuries occurred in streets, followed by home (22.93%) and workplace (2.16%). About 0.6% of injuries were registered in educational facilities and 0.11% of injuries occurred in health facilities (Figure 6).

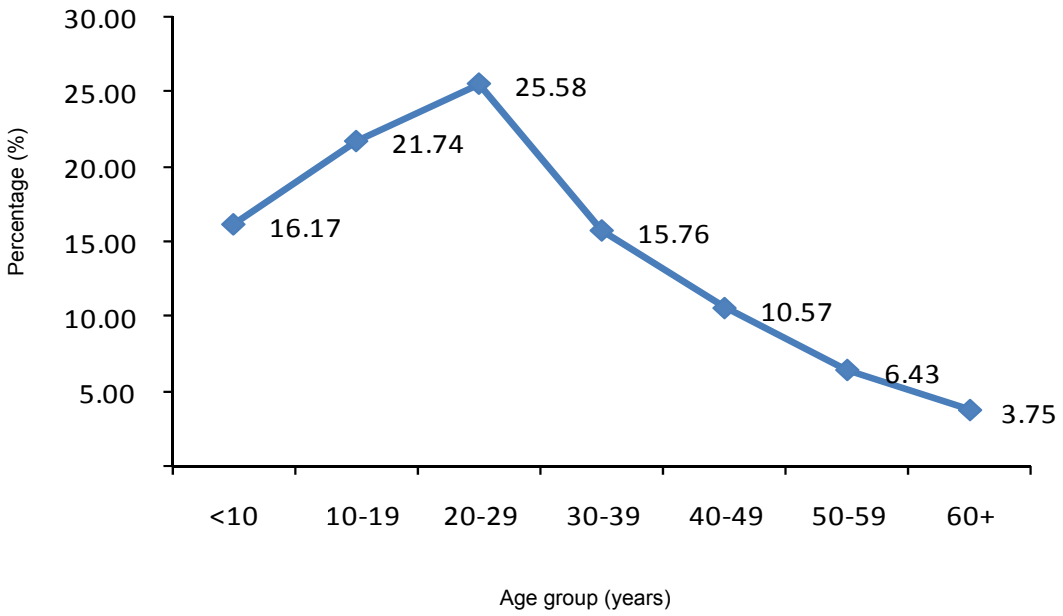

Figure 5. Percentile distribution of injuries according to age group, 2009

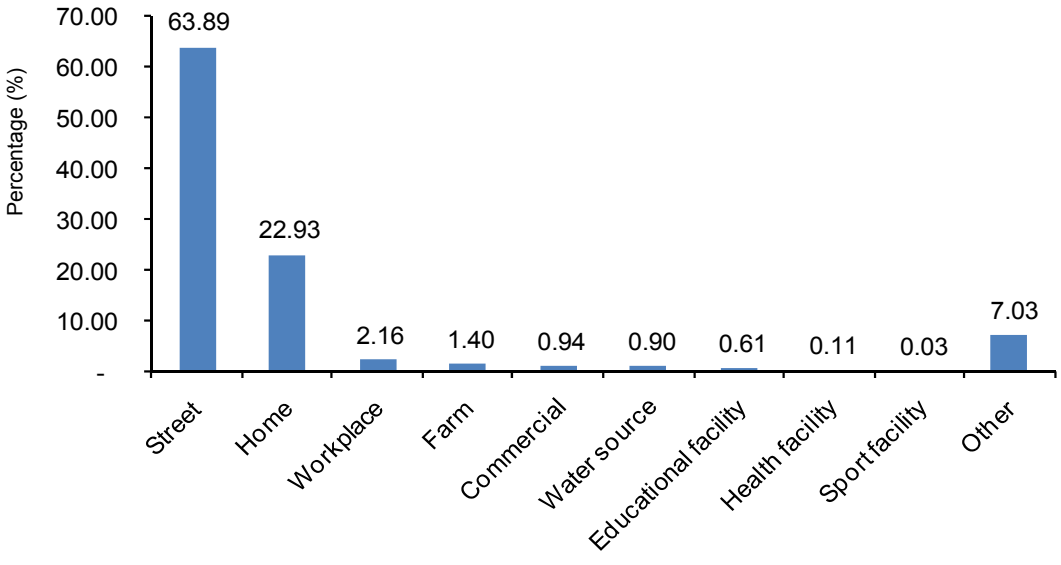

Figure 6. Percentile distribution of injuries according to place of injury, 2009

A total of 71.97% of injuries were non-intentional, while intentional injuries were 22.63%. A total of 0.03% of cases were registered as sexual assaults and 0.15% as maltreatment (Figure 7).

While 82.5% of cases were treated and discharged, 15.22% were admitted. The transfer rate to other facilities was 1.9%, and 0.38% died (Figure 8).

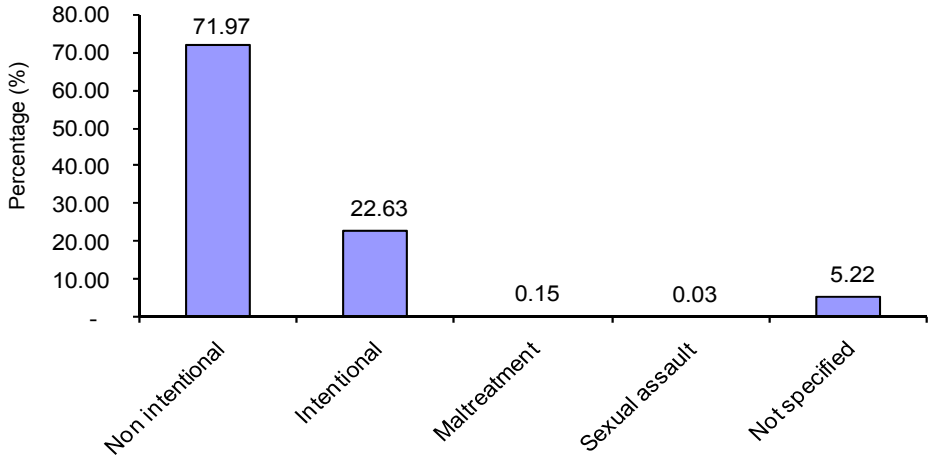

Figure 7. Percentile distribution of injuries according to intent, 2009

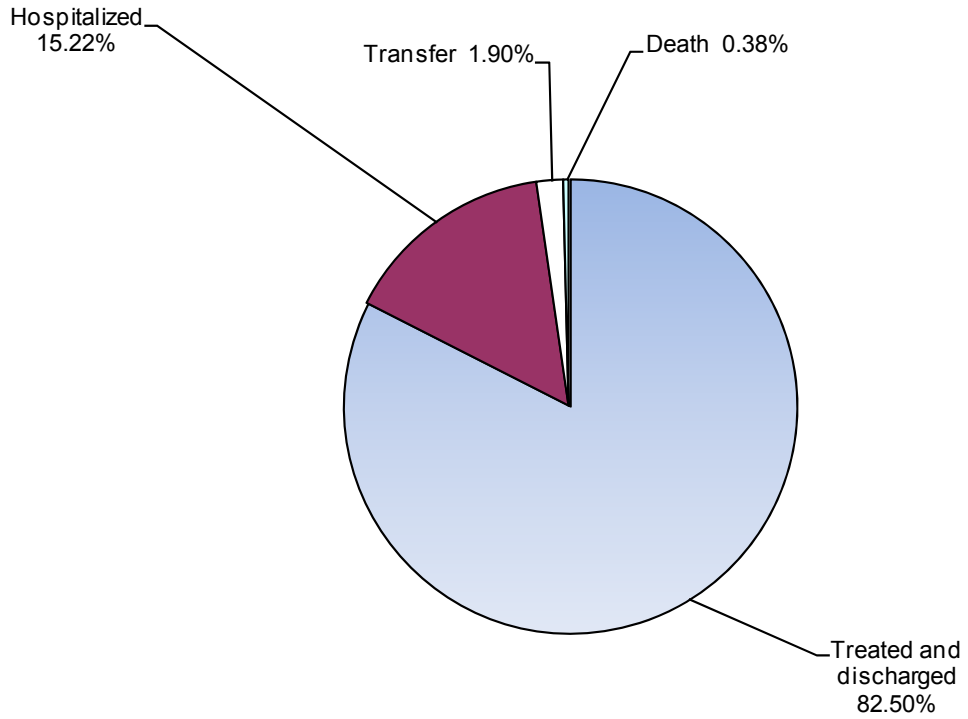

Figure 8. Percentile distribution of injuries according to outcome, 2009

3.3 Road traffic injuries

In 2009, a total of 96 025 injury cases due to road traffic injuries were collected from the injury surveillance system; 80.37% of these cases were males and 19.63% were females (Figure 9).

According to surveillance data (Table 2), road traffic injuries increased from 11.52% of injuries in 2001 to 12.87% of injuries in 2009 (Figure 10).

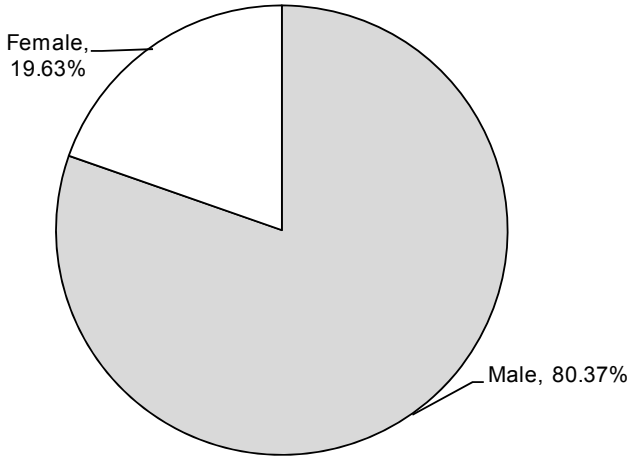

Figure 9. Percentile distribution of road traffic injuries according to sex, 2009

Table 2. Surveillance data, road traffic injuries, 2009

Year	No. of road traffic injuries	Total injuries	%
2001	60 847	528 086	11.52
2002	62 130	508 110	12.23
2003	66 321	520 239	12.75
2004	82 315	554 256	14.85
2005	75 223	751 050	10.02
2006	78 020	798 501	9.77
2007	86 324	779 635	11.07
2008	93 467	774 457	12.07
2009	96 025	746 139	12.87

Age distribution

The highest distribution of road traffic injuries (28.45%) occurred between ages 20 and 29 years, which is the most reproductive age of the community (Figure 11).

Distribution according to road users

Car users constituted 63.41% of road traffic injuries (Table 3). Vulnerable road users (pedestrians, pedal cyclists and motorcyclists) together constituted 31% of road traffic injuries (Figure 12).

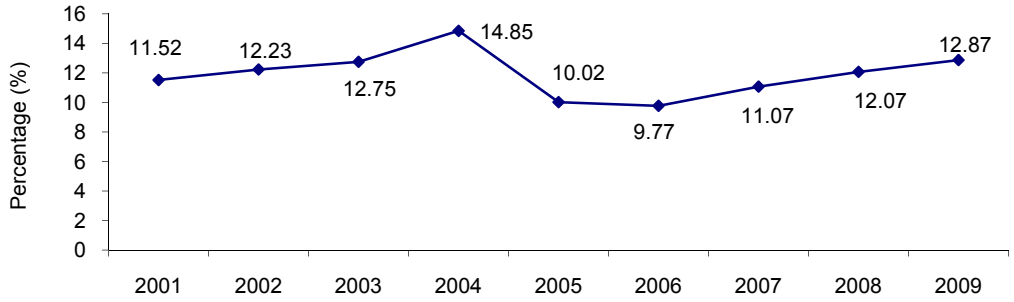

Figure 10. Percentile distribution of road traffic crashes from 2000 to 2009

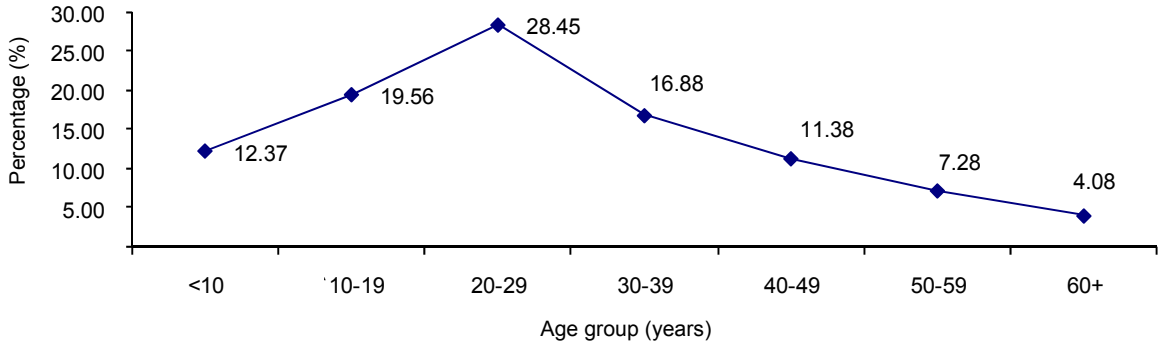

Figure 11. Percentile distribution of road traffic injuries according to age group, 2009

Table 3. Percentage of injuries according to type of vehicle used

ICD block	Road user	%
V40–V49	Car	63.41
V01–V09	Pedestrian	15.41
V20–V29	Motorcyclists	12.73
V10–V19	Pedal cyclists	2.65
V30–V39	Three-wheeled motor vehicle	0.81
V60–V69	Heavy transport vehicle	0.75
V81	Train	0.59
V70–V79	Bus	0.45
V50–V59	Pick-up truck or van	0.17
V90–V94	Water transport	0.04
V95–V97	Air and space transport	0.02
V80–V89	Unspecified	1.85
V98–V99	Other	1.13

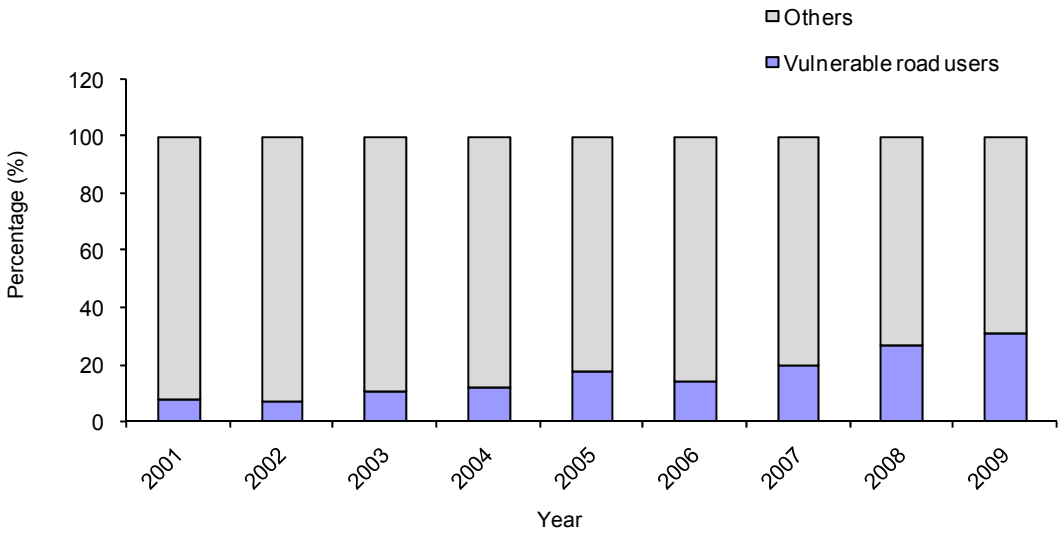

Figure 12. Percentile distribution of vulnerable road users from 2001 to 2009

Distribution of road users versus counter-users, road traffic injuries, 2009

Pedestrians

A total of 19.4% of pedestrians were injured by cars, followed by two- or three-wheeled motor vehicles (18.61%) and pedal cyclists (12.74%). The increased percentage of unspecified data was due to the start of registration using the ICD classification in the governorates (Table 4).

Car occupants

The percentage of car occupants injured by hitting pedestrians or animals as road counter-users was 18.72% of injures, which was higher than car occupants injured by cars as counter-users (16.91%) (Table 5).

Motorcyclists

Surveillance data regarding counter-users for motorcyclists had low-quality registration in 2009; however, within the registered cases the highest injuries involved hitting pedestrians, animals or pedal cyclists (Table 6).

Table 4. Causes of pedestrian injuries

ICD	Road counter-user	No.	%
V01	Pedal cycle	1 885	12.74
V02	Two- or three-wheeled motor vehicle	2 754	18.61
V03	Car, pick-up truck or van	2 871	19.4
V04	Heavy transport vehicle or bus	138	0.93
V05	Railway train or railway vehicle	66	0.45
V06	Other	262	1.77
V09	Unspecified	6 825	46.11
Total		14 801	100.00

Table 5. Causes of injuries for case occupants based on the type of crash

ICD	Road counter-user	No.	%
V40	Pedestrian or animal	11 396	18.72
V41	Pedal cycle	1 479	2.43
V42	Two- or three-wheeled motor vehicle	544	0.89
V43	Car, pick-up truck or van	10 294	16.91
V44	Heavy transport vehicle or bus	1 770	2.91
V45	Railway train or railway vehicle	23	0.04
V46	Other non-motor vehicle	97	0.16
V47	Fixed or stationary object	1 398	2.30
V48	Non-collision transport accident	957	1.57
V49	Unspecified	32 932	54.08
Total		60 890	100.00

Table 6. Predominant objects hit by two-wheelers (motor cycles)

ICD	Road counter-user	No.	%
V20	Pedestrian or animal	1 09	8.97
V21	Pedal cycle	39	3.22
V22	Two- or three-wheeled motor vehicle	20	1.64
V23	Car, pick-up truck or van	75	6.14
V24	Heavy transport vehicle or bus	7	0.57
V25	Railway train or railway vehicle	2	0.21
V26	Other non-motor vehicle	2	0.19
V27	Fixed or stationary object	35	2.87
V28	Non-collision transport accident	4	0.34
V29	Unspecified	9 26	75.83

Three-wheeled vehicle occupants

A total of 43.47% of injuries of occupants of three-wheeled vehicles involved hitting pedestrian or animals (Table 7).

Pedal cyclists

A total of 21.54% of injuries of pedal cyclists involved hitting pedestrians or animals (Table 8).

Table 7. Causes of injuries among occupants of 3-wheelers

ICD	Road counter-user	No.	%
V30	Pedestrian or animal	336	43.47
V31	Pedal cycle	34	4.40
V32	Two- or three-wheeled motor vehicle	77	9.96
V33	Car, pick-up truck or van	58	7.50
V34	Heavy transport vehicle or bus	5	0.65
V35	Railway train or railway vehicle	3	0.39
V36	Other non-motor vehicle	4	0.52
V37	Fixed or stationary object	69	8.93
V38	Non-collision transport accident	9	1.16
V39	Unspecified	178	23.03

Table 8. Predominant causes of injuries among pedal cyclists

ICD	Road counter-user	No.	%
V11	Pedestrian or animal	432	21.54
V12	Pedal cycle	142	7.08
V13	Two- or three-wheeled motor vehicle	129	6.43
V14	Car, pick-up truck or van	47	2.34
V15	Heavy transport vehicle or bus	21	1.05
V16	Railway train or railway vehicle	18	0.90
V17	Other non-motor vehicle	79	3.94
V18	Fixed or stationary object	8	0.40
V19	Non-collision transport accident	1130	56.33

Geographical distribution

The highest numbers of road traffic injuries were in Beni Suef, Ismailia, South Sinai, Red Sea, North Sinai and Suez (Table 9).

Table 9. Number of road traffic injuries according to geographical distribution

Governorate	No. of road traffic injuries	Total injuries	%
Ben Suef	4 225	8 260	51.15
Ismailia	2 497	7 995	31.23
South Sinai	1 712	5 496	31.15
Red Sea	1 025	3 354	30.56
North Sinai	1 076	3 546	30.34
Suez	1 847	6 530	28.28
Damietta	4 794	21 261	22.55
Dakahlia	7 040	37 616	18.72
Qena	4 121	22 064	18.68
Menoufia	4 093	22 083	18.53
Assiut	10 699	64 526	16.58
Alexandria	4 009	24 461	16.39
Aswan	489	3 096	15.79
Cairo	6 500	42 348	15.35
Fayoum	2 699	18 050	14.95
Giza	4 204	30 978	13.57
New Valley	507	3783	13.40
Helwan	1 550	11 704	13.24
Qalyubia	4 470	35 657	12.54
Kafr el Sheikh	2 881	23 560	12.23
Sharkia	3 954	33 041	11.97
6th October	2 140	18 798	11.38
Beheira	4 014	38 186	10.51
Gharbia	4 910	62 147	7.90
Minya	5 232	71 306	7.34
Sohag	4 167	83 216	5.01
Port Said	10 95	31 874	3.44
Luxor	74	6 340	1.17
Matrouh	1	4 862	0.02
Total	96 025	746 138	12.87

Distribution according to diagnosis of injury

Tables 10–16 show distribution of road traffic injuries according to diagnosis.

Table 10. Number and percentage of road traffic injuries according to body site

Code	Diagnosis	No.	%
S00	Superficial injury of head	6 485	6.80
S01	Open wound of head	9 795	10.28
S02	Fracture of skull and facial bones	965	1.01
S03	Dislocation, sprain and strain of joints	156	0.16
S04	Injury of cranial nerves	33	0.03
S05	Injury of eye and orbit	131	0.14
S06	Intracranial injury	1 619	1.70
S07	Crushing injury of head	7 205	7.56
S08	Traumatic amputation of part of head	11	0.01
S09	Other and unspecified injuries of head	1 426	1.50

Table 11. Place and type of injury among victims with neck injuries

Code	Diagnosis	No.	%
S10	Superficial injury of neck	787	1.17
S11	Open wound of neck	295	0.44
S12	Fracture of neck	225	0.33
S13	Dislocation, sprain and strain of joints and ligaments	43	0.06
S14	Injury of nerves and spinal cord at neck level	16	0.02
S15	Injury of blood vessels at neck level	5	0.01
S16	Injury of muscle and tendon at neck level	4	0.01
S17	Crushing injury of neck	6	0.01
S18	Traumatic amputation at neck level	1	0.00
S19	Other and unspecified injuries of neck	72	0.11

Table 12. Place and type of injury among victims with thorax injuries

Code	Diagnosis	No.	%
S20	Superficial injury of thorax	2 519	3.82
S21	Open wound of thorax	207	0.31
S22	Fracture of rib(s), sternum and thoracic spine	1 150	1.74
S23	Dislocation, sprain and strain of joints and ligaments	63	0.1
S24	Injury of nerves and spinal cord at thorax level	18	0.03
S25	Injury of blood vessels of thorax	24	0.04
S26	Injury of heart	3	0.00
S27	Injury of other and unspecified intrathoracic organ	21	0.03
S28	Crushing injury of thorax and traumatic amputation	1	0.00
S29	Other and unspecified injuries of thorax	27	0.04

Table 13. Place and type of injury among victims with abdominal injuries

Code	Diagnosis	No.	%
S30	Superficial injury of abdomen, lower back and pelvis	2 090	3.37
S31	Open wound of abdomen, lower back and pelvis	3127	5.04
S32	Fracture of lumbar spine and pelvis	539	0.87
S33	Dislocation, sprain and strain of joints and ligaments	45	0.07
S34	Injury of nerves and lumbar spinal cord at abdomen	23	0.04
S35	Injury of blood vessels at abdomen, lower back a	69	0.11
S36	Injury of intra-abdominal organs	249	0.40
S37	Injury of urinary and pelvic organs	143	0.23
S38	Crushing injury and traumatic amputation of part	13	0.02
S39	Other and unspecified injuries of abdomen, lower	799	1.29

Table 14. Place and type of injury among victims with lower limb injuries

Code	Diagnosis	No.	%
S70	Superficial injury of hip and thigh	314	0.66
S71	Open wound of hip and thigh	146	0.30
S72	Fracture of femur	762	1.59
S73	Dislocation, sprain and strain of joint and ligament	13	0.03
S74	Injury of nerves at hip and thigh level	2	0.00
S75	Injury of blood vessels at hip and thigh level	4	0.01
S76	Injury of muscle and tendon at hip and thigh level	1	0.00
S77	Crushing injury of hip and thigh	10	0.02
S78	Traumatic amputation of hip and thigh	1	0.00
S79	Other and unspecified injuries of hip and thigh	20	0.04
S80	Superficial injury of lower leg	713	1.49
S81	Open wound of lower leg	447	0.93
S82	Fracture of lower leg, including ankle	1 654	3.45
S83	Dislocation, sprain and strain of joints and ligaments	57	0.12
S84	Injury of nerves at lower leg level	10	0.02
S85	Injury of blood vessels at lower leg level	8	0.02
S86	Injury of muscle and tendon at lower leg level	7	0.01
S87	Crushing injury of lower leg	14	0.03
S88	Traumatic amputation of lower leg	5	0.01
S89	Other and unspecified injuries of lower leg	43	0.09
S90	Superficial injury of ankle and foot	733	1.53
S91	Open wound of ankle and foot	535	1.12
S92	Fracture of foot, except ankle	1 361	2.84
S93	Dislocation, sprain and strain of joints and ligaments	30	0.06
S94	Injury of nerves at ankle and foot level	11	0.02
S95	Injury of blood vessels at ankle and foot level	13	0.03
S96	Injury of muscle and tendon at ankle and foot level	8	0.02
S97	Crushing injury of ankle and foot	11	0.02
S98	Traumatic amputation of ankle and foot	9	0.02
S99	Other and unspecified injuries of ankle and foot	471	0.98

Table 15. Type and place of victim with multiple injuries

Code	Diagnosis	No.	%
T00	Superficial injuries involving multiple body regions	3 032	7.49
T01	Open wounds involving multiple body regions	5 079	12.54
T02	Fractures involving multiple body regions	282	0.70
T03	Dislocations, sprains and strains involving multiple body regions	8	0.02
T04	Crushing injuries involving multiple body region	83	0.20
T05	Traumatic amputations involving multiple body regions	2	0.00
T06	Other injuries involving multiple body regions	468	1.16
T07	Unspecified multiple injuries	2 461	6.08
T08	Fracture of spine, level unspecified	190	0.47
T09	Other injuries of spine and trunk, level unspecified	406	1.00
T10	Fracture of upper limb, level unspecified	96	0.24
T11	Other injuries of upper limb, level unspecified	115	0.28
T12	Fracture of lower limb, level unspecified	84	0.21
T13	Other injuries of lower limb, level unspecified	79	0.20
T14	Injury of unspecified body region	27 084	66.87

Table 16. Predominant body parts affected by burns and corrosion

Code	Diagnosis	No.	%
T15	Foreign body on external eye	25	2.42
T16	Foreign body in ear	40	3.88
T17	Foreign body in respiratory tract	13	1.26
T18	Foreign body in alimentary tract	2	0.19
T19	Foreign body in genitourinary tract	3	0.29
T20	Burn and corrosion of head and neck	213	20.64
T21	Burn and corrosion of trunk	112	10.85
T22	Burn and corrosion of shoulder and upper limb, except	4	0.39
T23	Burn and corrosion of wrist and hand	1	0.10
T24	Burn and corrosion of hip and lower limb, except	2	0.19
T25	Burn and corrosion of ankle and foot	1	0.10
T26	Burn and corrosion confined to eye and adnexa	5	0.48
T27	Burn and corrosion of respiratory tract	2	0.19
T28	Burn and corrosion of other internal organs	6	0.58
T29	Burns and corrosions of multiple body regions	603	58.43

Outcome

A total of 55.1% of road traffic injuries were treated and discharged and 36.87% were hospitalized. The transfer rate was 6.43% (Figure 13).

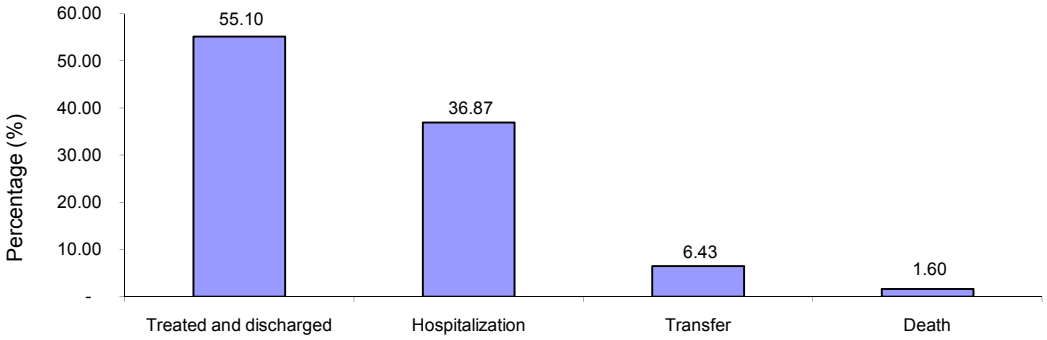

Figure 13. Road traffic injuries treated and discharged

3.4 Fall injuries

A total of 20.12% of injuries were due to fall. However, there were observed geographical variations (Table 17). The highest number of injuries due to fall was in

Table 17. Percentage of injuries due to falls

Governorate	No. of fall injuries	Total no. of injuries	%
Matrouh	3 548	4 862	72.97
Assiut	24 191	64 526	37.49
Sohag	27 905	83 216	33.53
Cairo	13 324	42 348	31.46
Gharbia	19 105	62 147	30.74
Fayoum	5 356	18 050	29.67
Port Said	7 634	31 874	23.95
Qalyubia	6 045	35 657	16.95
Dakahlia	6 084	37 616	16.17
Red Sea	5 24	3 354	15.62
Minya	11 050	71 306	15.50
South Sinai	826	5 496	15.03
Sharkia	4 609	33 041	13.95
Damietta	2 818	21 261	13.25
Ismailia	1 048	7 995	13.11
Qena	2 625	22 064	11.90
Helwan	1 281	11 704	10.94
Alexandria	2 442	24 461	9.98
Menoufia	2 201	22 083	9.97
Aswan	212	3 096	6.85
Beni Suef	561	8 260	6.79
Kafr el Sheikh	1 582	23 560	6.71
Giza	1 765	30 978	5.70
North Sinai	202	3 546	5.70
Beheira	1 974	38 186	5.17
New Valley	168	3 783	4.44
6th October	727	18 798	3.87
Luxor	143	6 340	2.26
Suez	142	6 530	2.17
Total	150 092	746 138	20.12

Table 18. Distribution of incidence of falls

ICD	Description	No.	%
W00	Fall on same level involving ice and snow	0	–
W01	Fall on same level from slipping, tripping	15 411	10.27
W02	Fall involving ice-skates, skis, roller-skates o	0	–
W03	Other fall on same level due to collision	573	0.38
W04	Fall while being carried or supported by other person	266	0.18
W05	Fall involving wheelchair	226	0.15
W06	Fall involving bed	765	0.51
W07	Fall involving chair	875	0.58
W08	Fall involving other furniture	721	0.48
W09	Fall involving playground equipment	373	0.25
W10	Fall on and from stairs and steps	2 069	1.38
W11	Fall on and from ladder	6 641	4.42
W12	Fall on and from scaffolding	545	0.36
W13	Fall from, out of or through building or structure	1 643	1.09
W14	Fall from tree	150	0.10
W15	Fall from cliff	91	0.06
W16	Diving or jumping into water causing injury	20	0.01
W17	Other fall from one level to another	7 480	4.98
W18	Other fall on same level	2 050	1.37
W19	Unspecified fall	110 193	73.42
Total		150 092	100.00

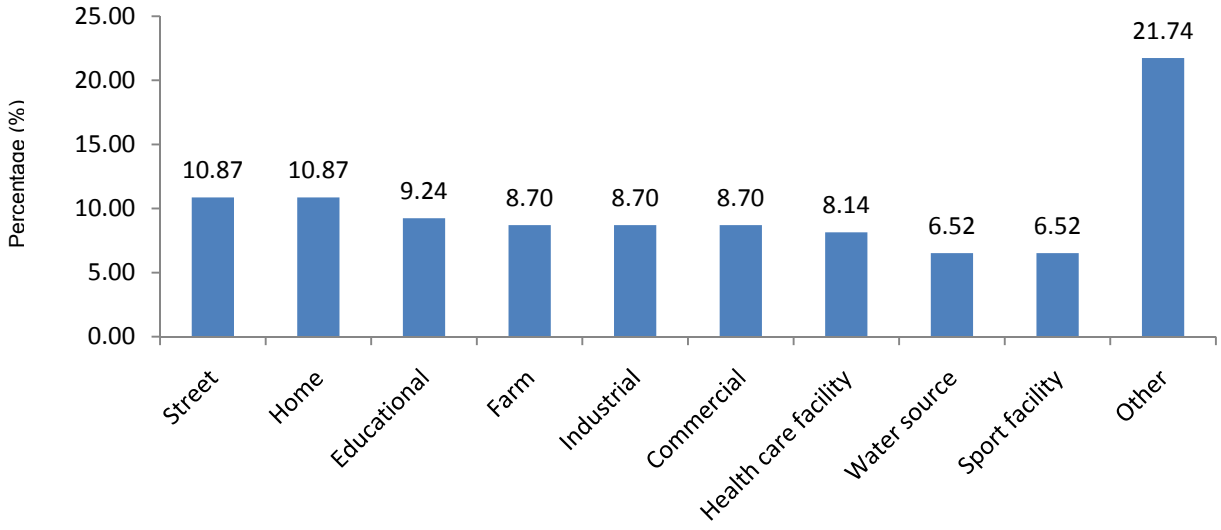

Figure 14. Percentile distribution of fall injuries according to place of injury, 2009

Matrouh (72.97%), followed by Assiut, Sohag, Cairo, Gharbia, Fayoum and Port Said. There is a need to identify risk factors, especially in governorates such as Matrouh, which have high numbers. Although not all the governorates classified by ICD-10, falls from the same level due to slipping (W01) had the highest distribution, followed by falls from ladders and falls from one level to another (Table 18).

According to the place of injury, street and home fall injuries were equally distributed (Figure 14). It is to be noted that 9.24% of fall injuries occurred in educational facilities, followed by 8.7% on farms and 8.15% in health care facilities.

Children below 10 years of age showed the higher distribution of fall injuries, constituting 27.13% of fall injuries (Figure 15).

Females showed an increase in the male:female distribution in falls injuries (Figure 16) compared with their distribution in total injuries.

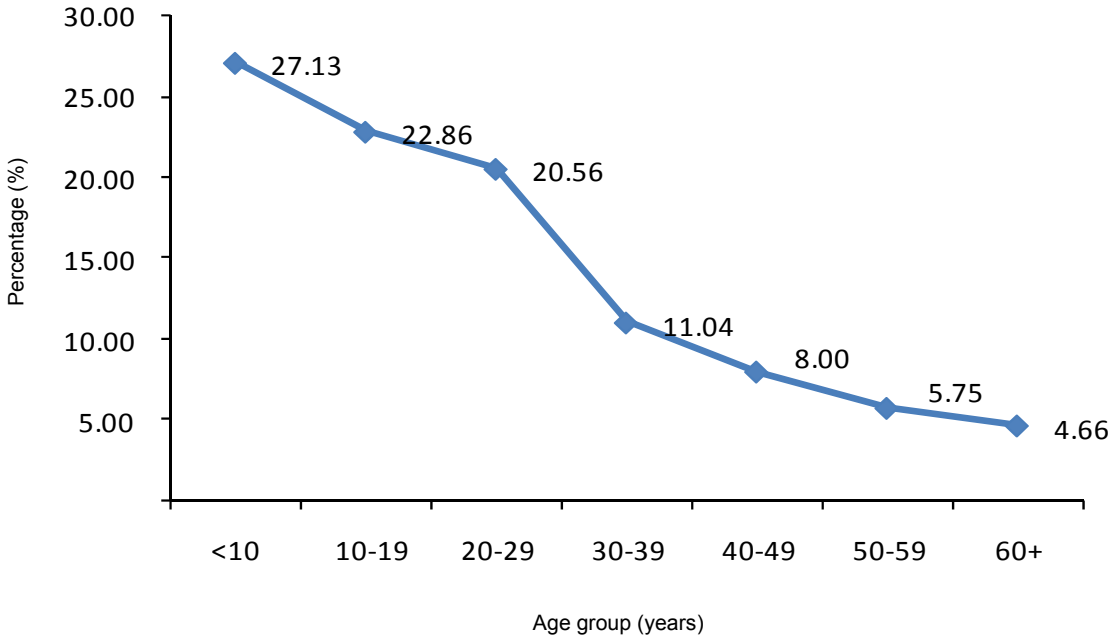

Figure 15. Percentile distribution of fall injuries according to age group, 2009

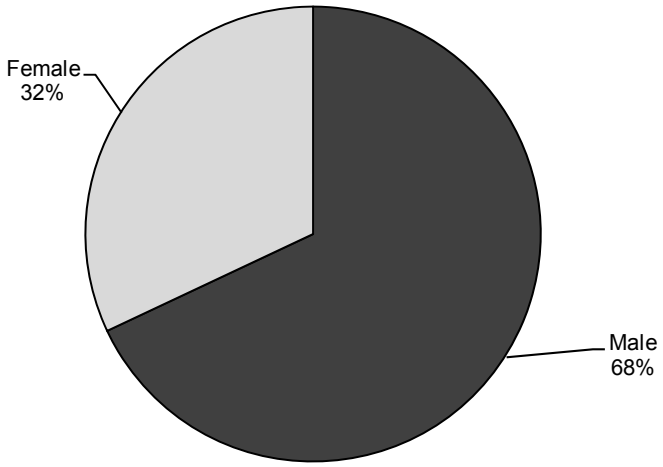

Figure 16. Percentile distribution of fall injuries according to sex, 2009

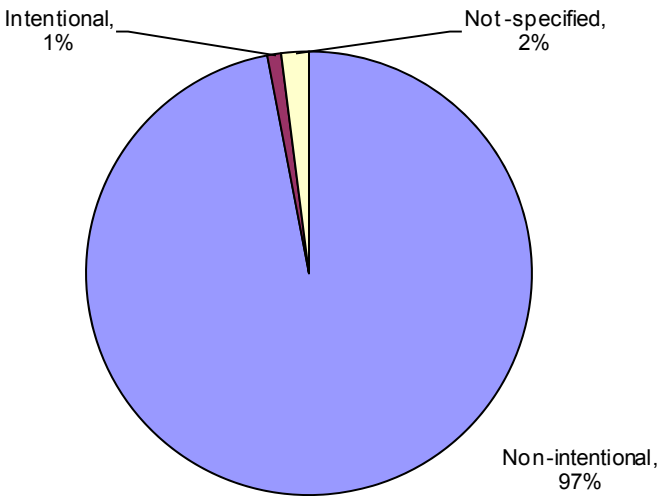

Figure 17. Percentile distribution of fall injuries according to intent, 2009

A total of 97% of fall injuries were unintentional (Figure 17). A total of 74% of fall injuries were treated and discharged, while 24% were admitted (Figure 18).

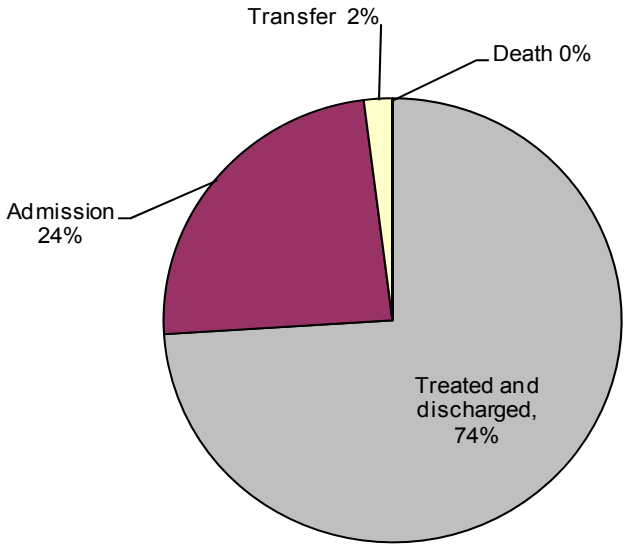

Figure 18. Percentile distribution of fall injuries according to outcome, 2009

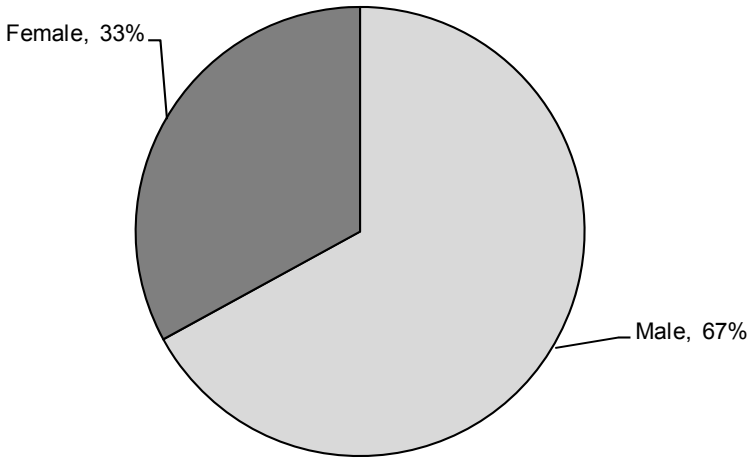

Figure 19. Percentile distribution of assaults according to sex, 2009

3.5 Assaults/fights

A total of 139 267 cases were registered as assaults/fights. Males accounted for 67.04% and females 32.96% (Figure 19). A total of 7.63% of assaults were by sharp object and 8.54% by bodily force (Table 19).

Table 19. Major causes of assault

ICD	Description	No.	%
X85	Assault by drugs, medicaments and biological substances	316	0.23
X86	Assault by corrosive substance	172	0.12
X87	Assault by pesticides	60	0.04
X88	Assault by gases and vapours	25	0.02
X89	Assault by other specified chemicals and noxious substances	25	0.02
X90	Assault by unspecified chemical or noxious substance	14	0.01
X91	Assault by hanging, strangulation and suffocation	15	0.01
X92	Assault by drowning and submersion	10	0.01
X93	Assault by handgun discharge	765	0.55
X94	Assault by rifle, shotgun and larger firearm discharge	23	0.02
X95	Assault by other and unspecified firearm discharge	429	0.31
X96	Assault by explosive material	5	0.00
X97	Assault by smoke, fire and flames	9	0.01
X98	Assault by steam, hot vapours and hot objects	40	0.03
X99	Assault by sharp object	10 632	7.63
Y00	Assault by blunt object	7 231	5.19
Y01	Assault by pushing from high place	197	0.14
Y02	Assault by pushing or placing victim	1 832	1.32
Y03	Assault by crashing of motor vehicle	44	0.03
Y04	Assault by bodily force	11 900	8.54
Y05	Sexual assault by bodily force	228	0.16
Y08	Assault by other specified means	538	0.39
Y09	Assault by unspecified means	104 757	75.22
Total		139 267	100.00

The age group 20 years to less than 30 years showed the highest distribution of assault injuries (Figure 20). A total of 87.49% of assaults occurred in the street, while 6.24% occurred at home (Figure 21). A total of 89.56% of assaults were treated and discharged without admission (Figure 22).

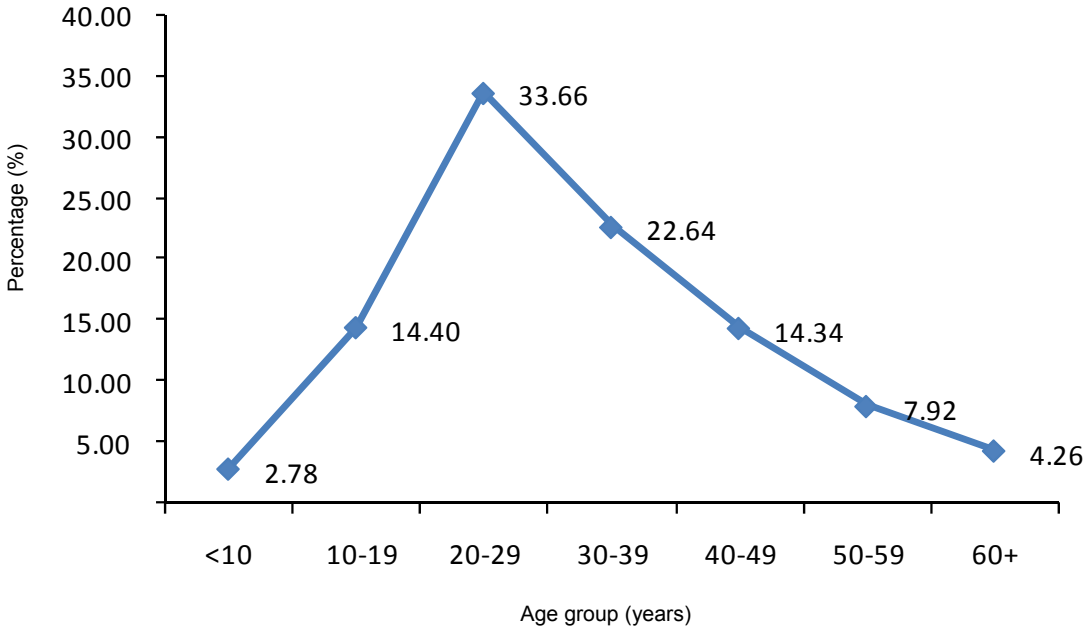

Figure 20. Percentage distribution of assaults according to age group, 2009.

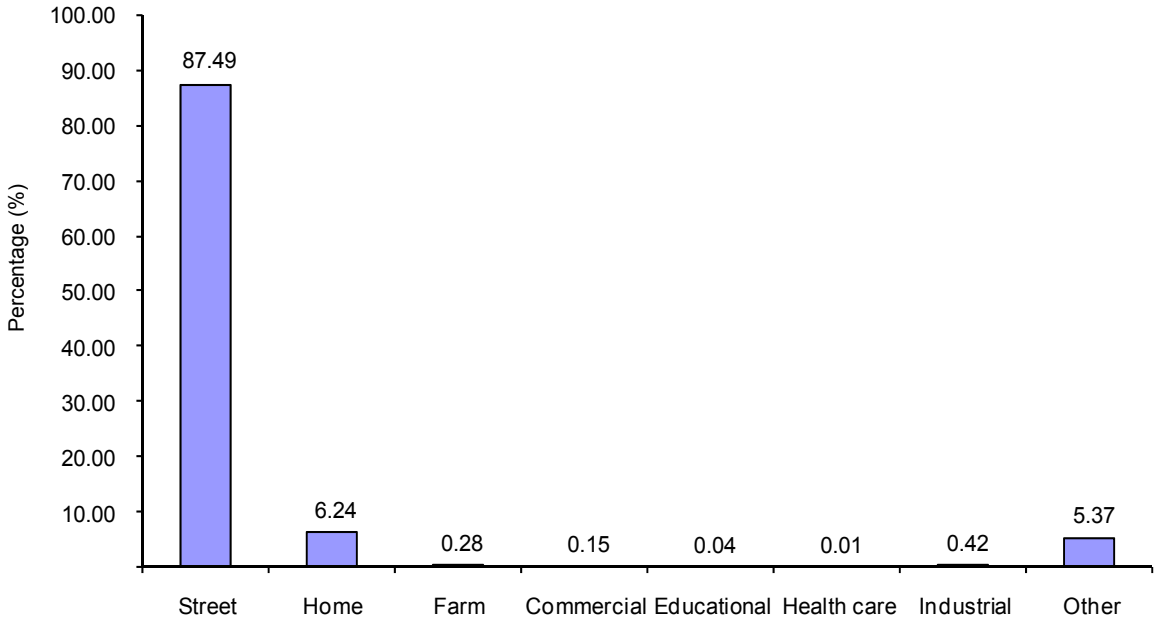

Figure 21. Percentage distribution of assaults according to location, 2009

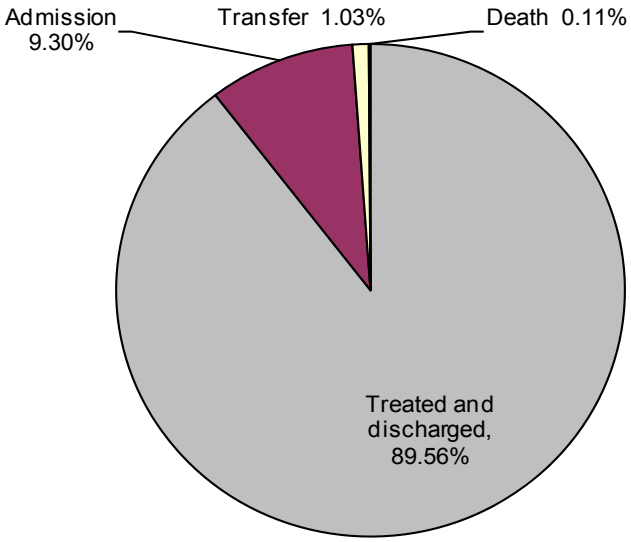

Figure 22. Percentile distribution of assaults according to outcome, 2009

4. Injury mortality

A total of 15 075 deaths were registered in 2009 due to injuries; 40.93% of these injury deaths were due to road traffic injuries (Table 20). For road traffic deaths, 31.65% occurred in non-collision crashes. Pedestrians in collision with cars accounted for 19.18% of deaths (Table 21).

Table 20. Total number of deaths due to different injury causes

External cause of injury	No.	%
Road traffic injuries	6 170	40.93
Drowning	1 453	9.64
Poisoning	1 145	7.60
Fall	742	4.92
Electric shock	346	2.30
Explosion	163	1.08
Assaults	73	0.48
Suicide	48	0.32
Not specified	4 935	32.74
Total	15 075	100.00

Table 21. Different causes of injuries caused to victim of crashes

ICD	Description	%
V48	Car occupant injured in non-collision transport accident	31.65
V03	Pedestrian injured in collision with car, pick-up	19.18
V87	Traffic accident of specified type but victim unspecified	17.86
V43	Car occupant injured in collision with car, pick up	5.38
V49	Car occupant injured in other and unspecified transport	4.42
V05	Pedestrian injured in collision with railway train	2.43
V98	Other specified transport accidents	1.91
V89	Motor- or non-motor-vehicle accident, type of vehicle not specified	1.80
V04	Pedestrian injured in collision with heavy trans	1.47
V09	Pedestrian injured in other and unspecified transport	1.32
V18	Pedal cyclist injured in non-collision transport	1.23
V81	Occupant of railway train or railway vehicle injury	1.20
V47	Car occupant injured in collision with fixed	0.92
V28	Motorcycle rider injured in non-collision transport	0.90
V82	Occupant of streetcar injured in transport accident	0.87
Other		7.47

A total of 75.53% of injury deaths were male, while 24.47% were female (Figure 23). The highest age group for injury deaths was from 20 years to 29 years (Figure 24).

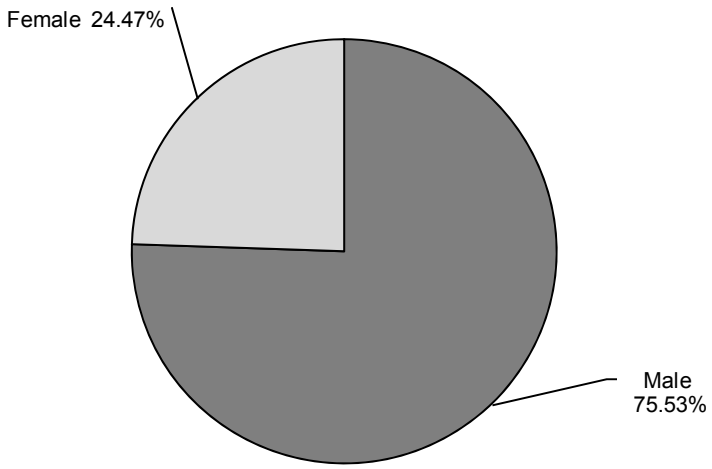

Figure 23. Percentile distribution of injury deaths according to sex, 2009

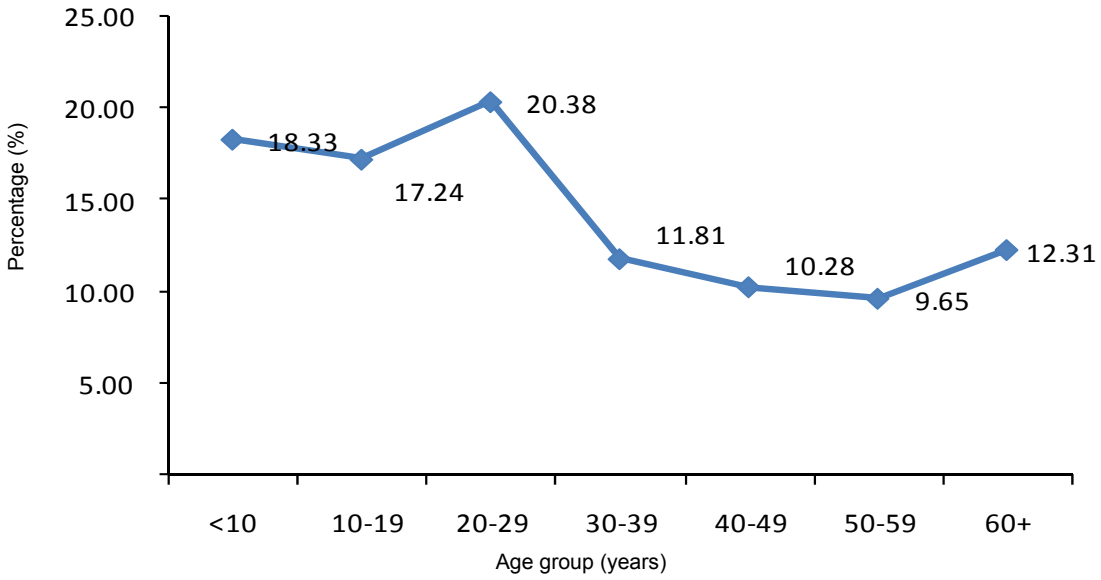

Figure 24. Percentile distribution of injury deaths according to age group, 2009

5. Violence and injury indicators

5.1 Indicators

Violence and injury indicators are defined as a summary measure which reflects, directly or indirectly, variations and trends in injury or violence, or in injury-related or violence-related phenomena (2).

The goals are to:

- quantify the nature and extent of the population burden due to injury (and violence);
- monitor the improvements that can be ascribed to initiatives;
- estimate the magnitude of violence and injury problems;
- identify emerging problems.

Table 22 shows the indicators used in public health practice.

Table 22. Mortality and morbidity indicators used in public health practice

Mortality indicators	Morbidity indicators
1. Death rate for injury and violence in the total population	4. Hospital admission rates for road traffic injury
2. Death ratio comparing the injury status of males to females	5. Hospital admission rates for road traffic injury among males aged 15–24 years
3. Death rates for road-traffic-related injury in the total population	6. Hospital admission rates due to falls among people aged 65 years and over
11. Death rates for drowning among children aged 0–4 years	7. Hospital admission rates due to falls among children aged 0–4 years
15. Death rates for road traffic-related injury among males aged 15–24 years	8. Hospital admission rates due to falls among children aged 5–9 years
16. Death rates due to falls among people aged 65 years and over	9. Hospital admission rates due to homicide in males
	10. Hospital admission rates due to homicide in Females
	12. Hospital admission rates due to drowning in children 0–4 ages
	13. Hospital admission rates due to poisoning in children 0–4 ages
	14. Hospital admission rates due to burns in children 0–4 ages

1. Death rate for injury and violence in the total population

Definition
Number of injury and violence death occurrences per 100 000 population per specified year, using the standard Egyptian population.

Data type
Numeric (rate).

Numerator
Number of deaths registered in deaths certificates codes V01–Y99.
Source: National Information Centre of Health and Population, Ministry of Health.

Denominator
Mid-year population in the same year.
Source: Central Agency for Public Mobilization And Statistics.

Formula
Total number of death occurrences coded to relevant ICD codes*100 000) / Mid-year population for relevant year; and the population.

2. Death ratio comparing the injury status of males and females

Definition
Ratio comparing the injury death for males with the injury death for females.

Data type
Numeric (ratio).

Numerator
Total number of death occurrences among male Egyptians assigned to relevant ICD-10 codes for a particular year.
Source: National Information Centre of Health and Population, Ministry of Health.

Denominator
Total number of death occurrences among female Egyptians assigned to relevant ICD-10 codes for a particular year.
Source: National Information Centre of Health and Population, Ministry of Health.

3. Death rates for road-traffic-related injury in the total population

Definition
Number of deaths due to road transport crashes per 100 000 population.

Data type
Numeric (rate).

Numerator
Total number of road traffic death occurrences in Egypt assigned to relevant ICD-10 codes for a particular year.
Source: National Information Centre of Health and Population, Ministry of Health.

Denominator
Mid-year total for Egyptian population for the same year as the numerator.
Source: National Information Centre of Health and Population, Ministry of Health.

4. Hospital admission rates for road traffic injury

Definition
Numbers of hospital admissions due to road traffic injuries per admitted injured persons per year.

Data type
Numeric (rate).

Numerator
Total number of registered hospital admissions in Egypt assigned to relevant ICD-10 codes for a particular year among cases V01–V99.
Source: Injury Control Unit, Occupational Health Department.

Denominator
Number of admitted patients in hospital due to injuries.
Source: Injury Control Unit, Occupational Health Department.

5. Hospital admission rates for road traffic injury among males aged 15–24 years

Definition
Numbers of hospital admissions due to road traffic injuries in males aged 15–24 years per admitted injured persons per year for the same age and sex.

Data type
Numeric (rate).

Numerator
Total number of registered hospital admissions in Egypt assigned to relevant ICD-10 codes for a particular year among cases V01–V99 in males 15–24 years.
Source: Injury Control Unit, Occupational Health Department.

Denominator
Number of admitted patients in hospital due to injuries in males 15–24 years.
Source: Injury Control Unit, Occupational Health Department.

6. Hospital admission rates due to falls among people aged 65 years and over

Definition
Number of hospital admissions due to falls among people aged 65 years and over per admitted injured patients in the same age group.

Data type
Numeric (rate).

Numerator
Number of injuries admitted to hospitals with the external cause of injury coded W00-W19 and aged 65 years and over.
Source: Injury Control Unit, Occupational Health Department.

Denominator
Number of admitted patients in hospital due to injuries aged 65 years or over.
Source: Injury Control Unit, Occupational Health Department.

7. Hospital admission rates due to falls among children aged 0–4 years

Definition
Numbers of hospital admissions due to falls among children aged 0–4 years per admitted injured for the same age.

Data type
Numeric (rate).

Numerator
Number of injuries admitted to hospitals with the external cause of injury coded W00-W19 and aged 0–4 years.
Source: Injury Control Unit, Occupational Health Department.

Denominator
Number of admitted patients in hospital in ages 0–4 years.
Source: Injury Control Unit, Occupational Health Department.

8. Hospital admission rates due to falls among children aged 5–9 years

Definition
Numbers of hospital admissions due to falls among children aged 5–9 years per admitted injured for the same age.

Data type
Numeric (rate).

Numerator
Number of injuries admitted to hospitals with the external cause of injury coded W00–W19 and aged 5–9 years.
Source: Injury Control Unit, Occupational Health Department.

Denominator
Number of admitted patients in hospital in ages 5–9 years.
Source: Injury Control Unit, Occupational Health Department.

9. Hospital admission rates due to homicide in males

Definition
Numbers of hospital admissions due to homicides among males per admitted injured for the same sex.

Data type
Numeric (rate).

Numerator
Number of injuries admitted to hospitals with the external cause of injury coded X85–Y09 and males.
Source: Injury Control Unit, Occupational Health Department

Denominator
Number of admitted patients in hospital in males.
Source: Injury Control Unit, Occupational Health Department

10. Hospital admission rates due to homicide in females

Definition
Numbers of hospital admissions due to homicides among females per admitted injured for the same sex.

Data type
Numeric (rate).

Numerator
Number of injuries admitted to hospitals with the external cause of injury coded X85–Y09 and females.
Source: Injury Control Unit, Occupational Health Department.

Denominator
Number of admitted patients in hospital in females.
Source: Injury Control Unit, Occupational Health Department.

11. Death rates for drowning among children aged 0–4 years (2008)

Definition
Number of drowning death occurrences per 100 000 population less than 5 years per specified year, using the standard Egyptian population.

Data type
Numeric (rate).

Numerator
Number of deaths aged 0–4 years registered in death certificate codes, W65–W74.
Source: National Information Centre of Health and Population, Ministry of Health.

Denominator
Mid-year population in the same year for ages 0–4 years.
Source: Central Agency for Public Mobilization And Statistics.

12. Hospital admission rates due to drowning in children 0–4 years

Definition
Numbers of hospital admissions due to drowning among children less than 5 years per admitted injured for the same age.

Data type
Numeric (rate).

Numerator
Number of injuries admitted to hospitals with the external cause of injury coded W65–W74 and age 0–4 years.
Source: Injury Control Unit, Occupational Health Department.

Denominator
Number of admitted patients in hospital children 0–4 years.
Source: Injury Control Unit, Occupational Health Department.

13. Hospital admission rates due to poisoning in children 0–4 years

Definition
Numbers of hospital admissions due to poisoning among children less than 5 years per admitted injured for the same age.

Data type
Numeric (rate).

Numerator
Number of injuries admitted to hospitals with the external cause of injury coded for poisoning and less than 5 years.
Source: Injury Control Unit, Occupational Health Department.

Denominator
Number of admitted patients in hospital in children less than 5 years due to injuries.
Source: Injury Control Unit, Occupational Health Department.

14. Hospital admission rates due to burns in children 0–4 ages

Definition
Numbers of hospital admissions due to burns among children less than 5 years per admitted injured for the same age.

Data type
Numeric (rate).

Numerator
Number of injuries admitted to hospitals with the external cause of injury coded W85–W91 and age 0–4 years.
Source: Injury Control Unit, Occupational Health Department.

Denominator
Number of admitted patients in hospital children 0–4 years.
Source: Injury Control Unit, Occupational Health Department.

15. Death rates for road traffic-related injury among males aged 15–24 years

Definition
Number of death occurrences due to road traffic injuries per 100 000 population for males 15–24 years in specified year, using the standard Egyptian population.

Data type
Numeric (rate).

Numerator
Number of deaths aged 15–24 males registered in deaths certificates codes, V01–V99.
Source: National Information Centre of Health and Population, Ministry of Health.

Denominator
Mid-year population in the same year for males ages 15–24 years.
Source: Central Agency for Public Mobilization and Statistics.

16. Death rates due to falls among people aged 65 years and over

Definition
Number of death occurrences due to fall injuries per 100 000 population for 65 years and above in specified year, using the standard Egyptian population.

Data type
Numeric (rate).

Numerator
Number of deaths aged 65 years or over registered in death certificates codes, W00–W19.
Source: National Information Centre of Health and Population, Ministry of Health.

Denominator
Mid-year population in the same year for ages 65 years or over.
Source: Central Agency for Public Mobilization and Statistics

5.2 Death rates for injury and violence per 100 000 population, 2009 (Table 23 and Figure 25)

Table 23. Death rates for injury and violence per 100 000 population, 2009

Governorate	Numerator	Denominator	Indicator value
National	15 201	72 798 031	20.88
South Sinai	158	150 088	105.27
Red Sea	192	288 661	66.51
Ismailia	524	953 006	54.98
Matrouh	138	323 381	42.67
New Valley	58	187 263	30.97
Cairo	2 051	6 758 581	30.35
Port Said	171	570 603	29.97
Suez	149	512 135	29.09
Alexandria	1176	4 123 869	28.52
North Sinai	94	343 681	27.35
Assiut	886	3 444 967	25.72
Minya	1 012	4 166 299	24.29
Damietta	259	1 097 339	23.60
Sohag	809	3 747 289	21.59
Fayoum	482	2 511 027	19.20
Beheira	898	4 747 283	18.92
Beni Suef	413	2 291 618	18.02
Gharbia	698	4 011 320	17.40
Qena	509	3 001 681	16.96
Sharkia	895	5 354 041	16.72
Menoufia	519	3 270 431	15.87
Luxor	71	457 286	15.53
Qalyubia	647	4 251 672	15.22
Giza	929	6 286 972	14.78
Dakahlia	712	4 989 997	14.27
Kafr el Sheikh	233	2 620 208	8.89
Aswan	80	1 186 482	6.74

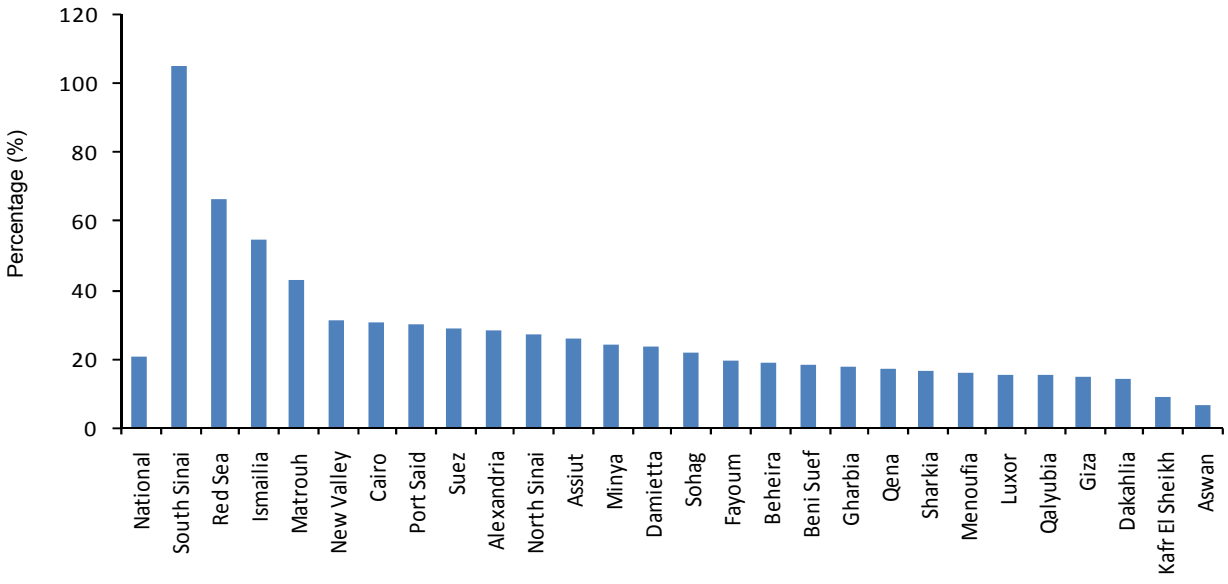

Figure 25. Death rates for injury and violence per 100 000 of total population, 2009

5.3 Death ratio comparing the injury status of males to females, 2009 (Table 24 and Figure 26)

Table 24. Death ratio comparing the injury status of males to females

Governorate	Numerator	Denominator	Indicator value
National	11 467	3 716	3.09
New Valley	51	7	7.29
South Sinai	136	22	6.18
Red Sea	165	27	6.11
Suez	122	26	4.69
Matrouh	112	24	4.67
North Sinai	77	17	4.53
Damietta	211	48	4.40
Port Said	138	33	4.18
Qalyubia	519	127	4.09
Aswan	63	17	3.71
Dakahlia	556	155	3.59
Sharkia	695	195	3.56
Qena	392	117	3.35
Minya	777	233	3.33
Kafr el Sheikh	178	54	3.30
Beheira	685	213	3.22
Ismailia	399	125	3.19
Alexandria	891	285	3.13
Beni Suef	312	101	3.09
Cairo	1 543	508	3.04
Luxor	53	18	2.94
Gharbia	514	182	2.82
Sohag	573	235	2.44
Menoufia	367	152	2.41
Giza	652	277	2.35
Assiut	607	279	2.18
Fayoum	329	152	2.16

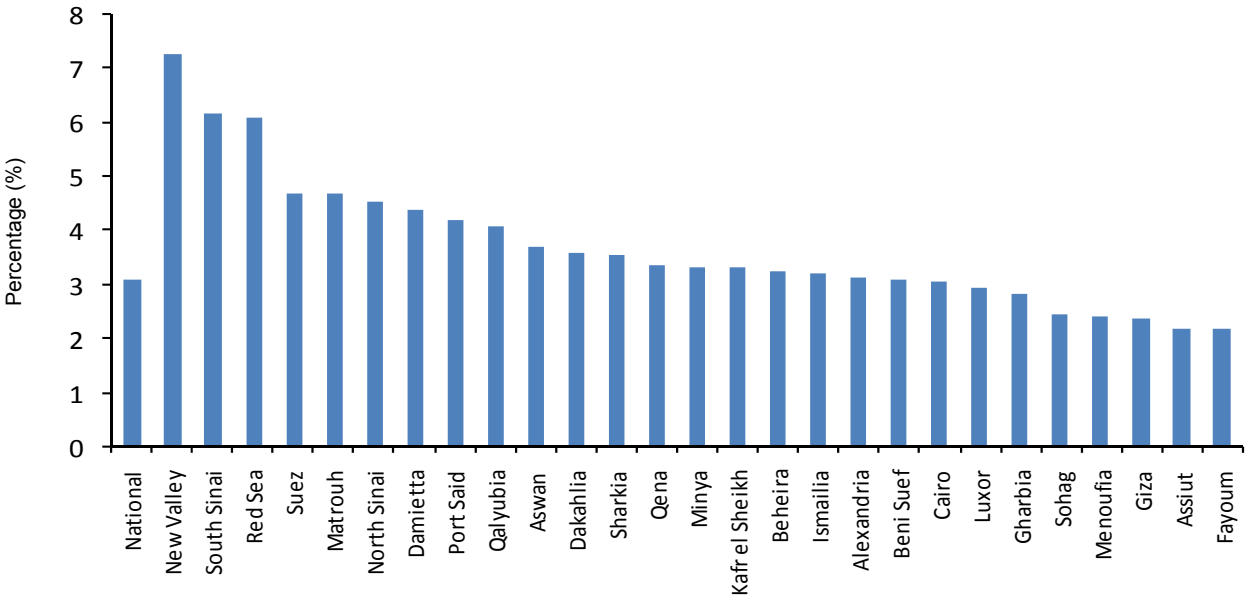

Figure 26. Death ratio comparing the injury status of males to females, 2009

5.4 Death rates for road traffic-related injury in the total population, 2009 (Table 25 and Figure 27)

Table 25. Death rates for road traffic-related injury in the total population

Governorate	Numerator	Denominator	Indicator value
National	5 767	72 798 031	7.92
South Sinai	100	150 088	66.63
Ismailia	268	953 006	28.12
Alexandria	708	4 123 869	17.17
New Valley	30	187 263	16.02
Port Said	91	570 603	15.95
Suez	67	512 135	13.08
Damietta	137	1 097 339	12.48
Cairo	790	6 758 581	11.69
Beheira	491	4 747 283	10.34
Red Sea	28	288 661	9.70
Sharkia	512	5 354 041	9.56
Minya	367	4 166 299	8.81
Sohag	302	3 747 289	8.06
Dakahlia	387	4 989 997	7.76
Menoufia	213	3 270 431	6.51
Qena	180	3 001 681	6.00
Assiut	205	3 444 967	5.95
Luxor	20	457 286	4.37
Qalyubia	176	4 251 672	4.14
North Sinai	14	343 681	4.07
Kafr el Sheikh	100	2 620 208	3.82
Matrouh	12	323 381	3.71
Giza	149	6 286 972	2.37
Gharbia	90	4 011 320	2.24
Fayoum	50	2 511 027	1.99
Aswan	18	1 186 482	1.52
Beni Suef	34	2 291 618	1.48

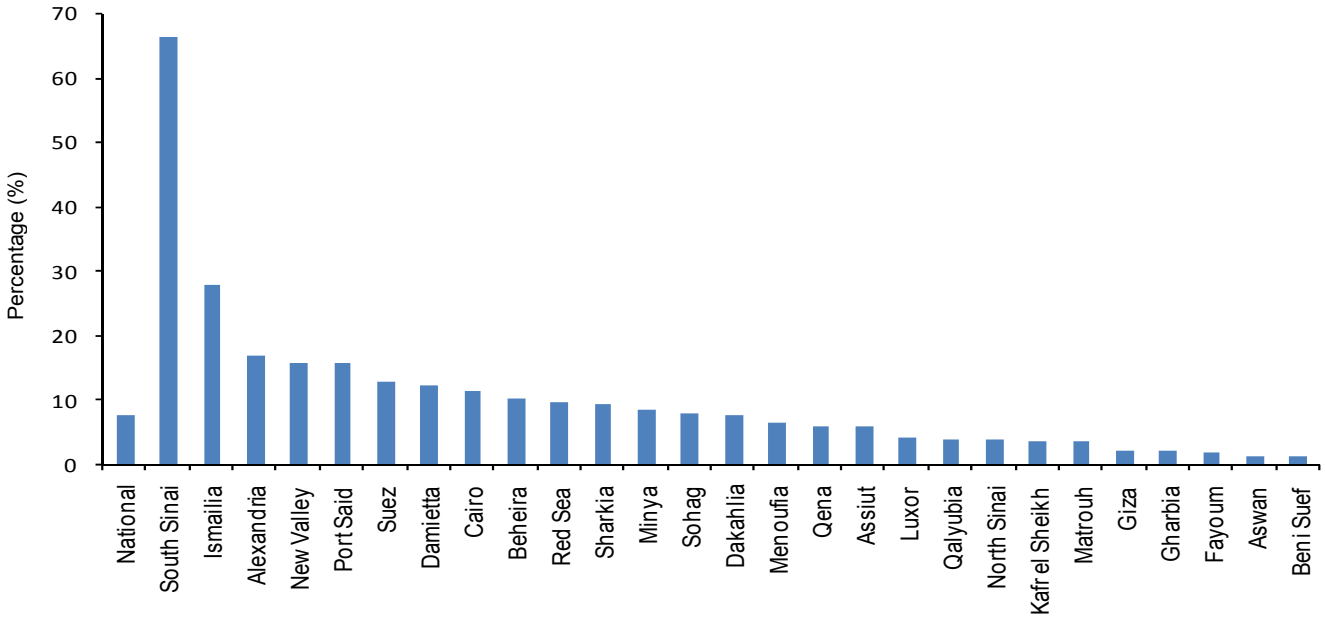

Figure 27. Death rates for road-traffic-related injury in the total population, 2009

5.5 Hospital admission rates

Hospital admission rates for road traffic injury, 2009 (Table 26 and Figure 28)

Table 26. Hospital admission rates for road traffic injury, 2009

Governorate	Numerator	Denominator	Indicator value
National	35 406	109 346	32.38
Red Sea	642	795	80.75
Suez	424	572	74.13
Alexandria	1 761	2 561	68.76
South Sinai	596	958	62.21
Menoufia	1 242	2 162	57.45
Damietta	2 500	4 470	55.93
Ismailia	661	1 191	55.50
Giza	1 498	3 360	44.58
Cairo	341	768	44.40
Aswan	342	779	43.90
Dakahlia	3 924	9 001	43.60
New Valley	293	679	43.15
Beni Suef	566	1 328	42.62
Sharkia	1 375	3 362	40.90
North Sinai	464	1 163	39.90
Qena	2 228	6 149	36.23
Kafr el Sheikh	1 663	4 840	34.36
Beheira	1 258	3 779	33.29
Fayoum	1 269	3 870	32.79
Qalyubia	2 307	8 731	26.42
Port Said	31	118	26.27
Minya	4 090	18 844	21.70
Assiut	1 234	5 984	20.62
Sohag	1 368	7 236	18.91
Gharbia	1 332	16 626	8.01
Luxor	0	20	–

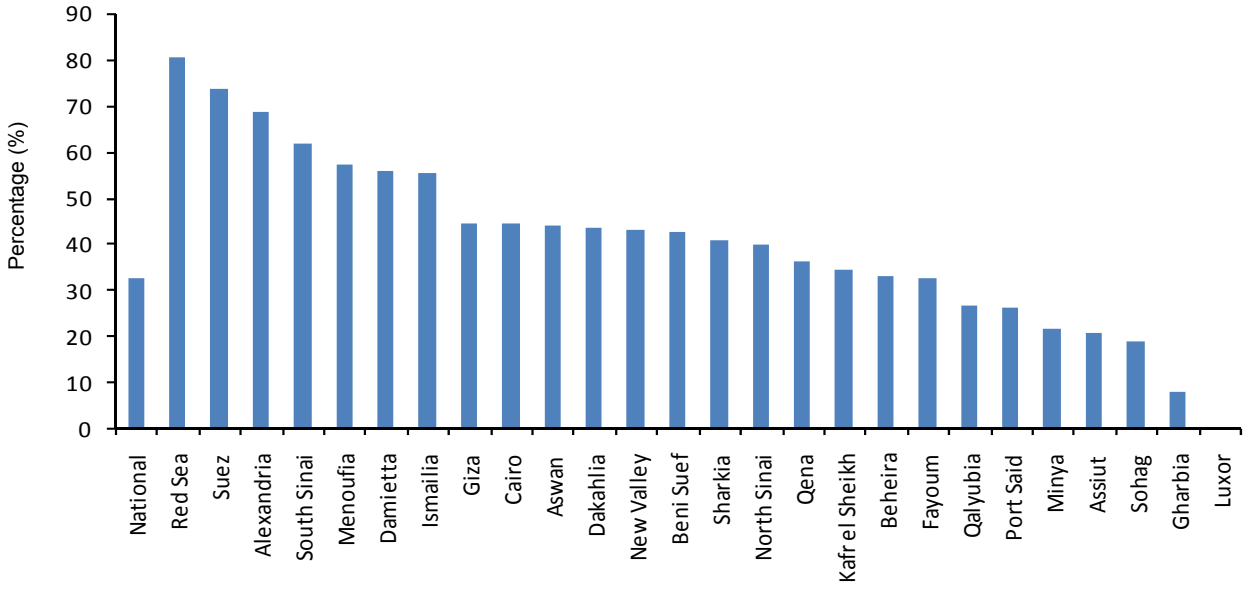

Figure 28. Hospital admission rates for road traffic injury, 2009

Hospital admission rates for road traffic injury among males aged 15–24 years, 2009 (Table 27 and Figure 29)

Table 27. Hospital admission rates for road traffic injury among males aged 15–24 years, 2009

Governorate	Numerator	Denominator	Indicator value
National	9 557	26 600	35.93
Red Sea	159	219	72.60
Giza	379	542	69.93
Suez	89	129	68.99
Menoufia	376	561	67.02
Damietta	867	1 296	66.90
Alexandria	334	517	64.60
South Sinai	181	296	61.15
Ismailia	179	293	61.09
Sharkia	378	741	51.01
Dakahlia	1 173	2 367	49.56
New Valley	82	167	49.10
North Sinai	98	211	46.45
Beni Suef	156	341	45.75
Fayoum	351	771	45.53
Cairo	95	214	44.39
Qena	568	1 336	42.51
Kafr el Sheikh	409	1 055	38.77
Aswan	39	117	33.33
Beheira	273	874	31.24
Qalyubia	653	2 399	27.22
Minya	1 103	4 246	25.98
Sohag	367	1 439	25.50
Assiut	311	1 298	23.96
Port Said	6	34	17.65
Gharbia	348	3 928	8.86
Luxor	0	3	–

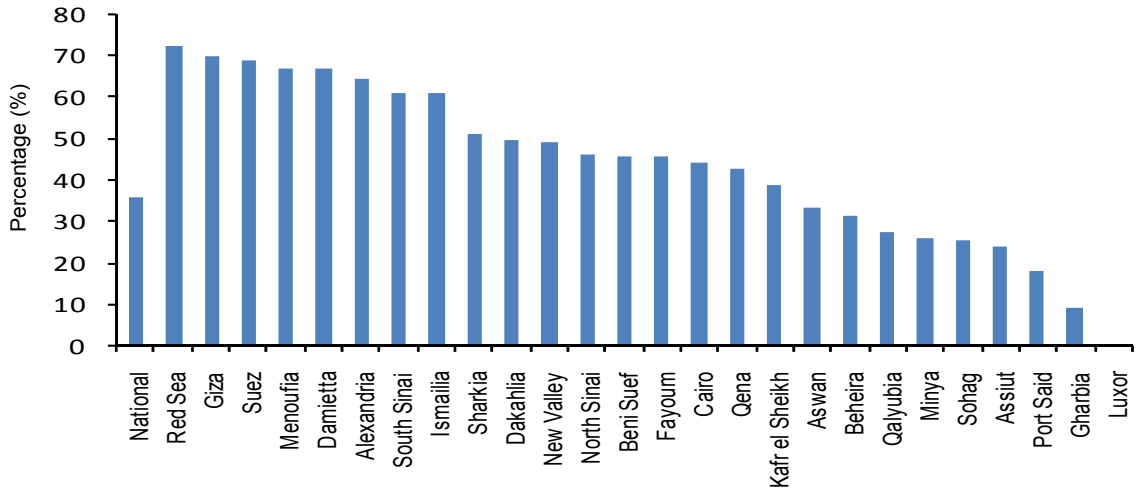

Figure 29. Hospital admission rates for road traffic injury among males aged 15–24 years, 2009

Hospital admission rates due to falls among people aged 65 years and over, 2009, (Table 28 and Figure 30)

Table 28. Hospital admission rates due to falls among people aged 65 years and over, 2009

Governorate	Numerator	Denominator	Indicator value
National	1 037	2 379	43.59
Gharbia	245	311	78.78
Sharkia	47	84	55.95
Minya	200	366	54.64
Sohag	136	249	54.62
Fayoum	55	110	50.00
Dakahlia	119	248	47.98
Assiut	53	125	42.40
Qena	63	177	35.59
Giza	17	51	33.33
Menoufia	9	35	25.71
South Sinai	4	16	25.00
Qalyubia	32	138	23.19
Aswan	4	18	22.22
Beni Suef	4	22	18.18
Kafr el Sheikh	15	85	17.65
Damietta	10	67	14.93
Suez	2	16	12.50
Ismailia	2	19	10.53
North Sinai	1	11	9.09
Beheira	7	82	8.54
Cairo	2	27	7.41
Alexandria	2	45	4.44
Helwan	1	28	3.57
New Valley	–	3	–
Port Said	–	2	–
Red Sea	–	6	–

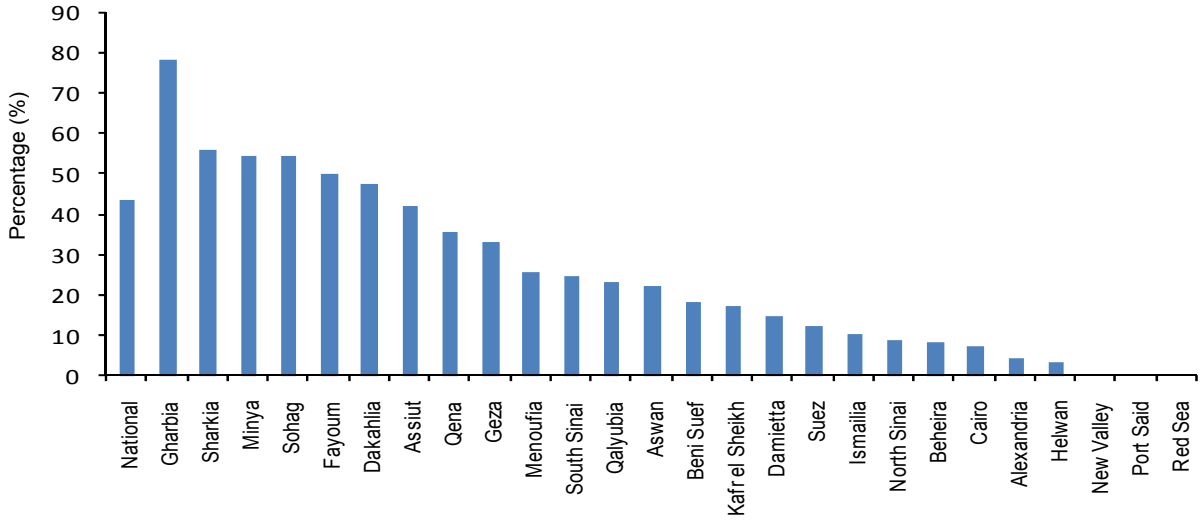

Figure 30. Hospital admission rates due to falls among people aged 65 years and over, 2009

Hospital admission rates due to falls among children aged 0–4 years, 2009 (Table 29 and Figure 31)

Table 29. Hospital admission rates due to falls among children aged 0–4 years, 2009

Governorate	Numerator	Denominator	Indicator value
National	412	13 547	3.04
Suez	4	22	18.18
Aswan	6	41	14.63
South Sinai	3	25	12.00
Beni Suef	14	126	11.11
Port Said	1	12	8.33
Beheira	26	319	8.15
New Valley	4	53	7.55
Menoufia	21	283	7.42
North Sinai	20	326	6.13
Fayoum	39	672	5.80
Dakahlia	47	890	5.28
Assiut	34	831	4.09
Cairo	3	78	3.85
Ismailia	3	94	3.19
Qena	20	694	2.88
Alexandria	18	728	2.47
Minya	55	2 378	2.31
Gharbia	46	2 404	1.91
Kafr el Sheikh	10	531	1.88
Giza	17	966	1.76
Damietta	6	376	1.60
Sharkia	5	333	1.50
Qalyubia	5	352	1.42
Sohag	5	983	0.51
Luxor	–	2	–
Red Sea	–	28	–

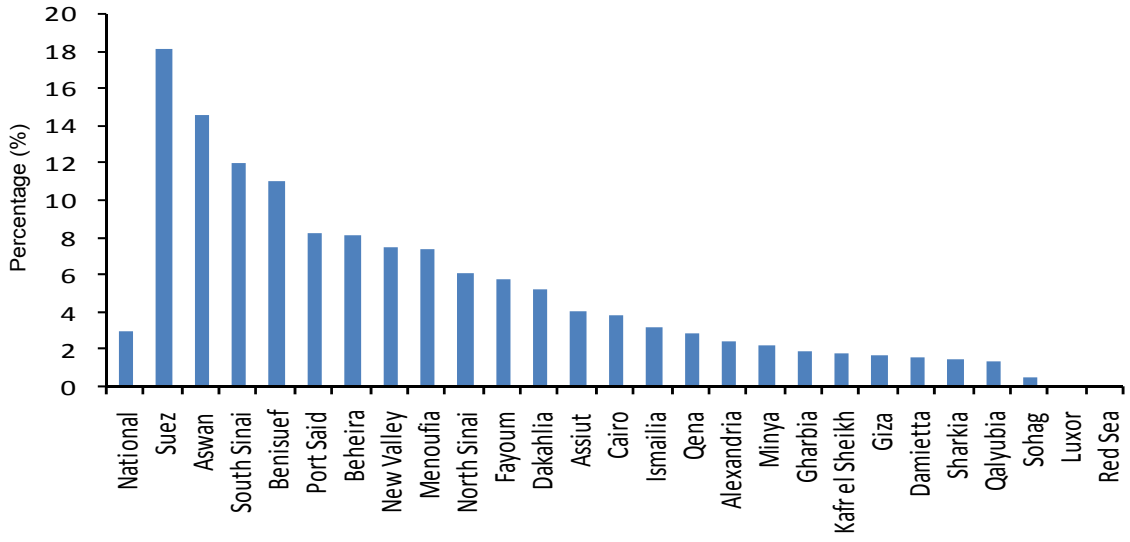

Figure 31. Hospital admission rates due to falls among children aged 0–4 years, 2009

Hospital admission rates due to falls among children aged 5–9 years, 2009 (Table 30 and Figure 32)

Table 30. Hospital admission rates due to falls among children aged 5–9 years, 2009

Governorate	Numerator	Denominator	Indicator value
National	426	11 084	3.84
Port Said	3	7	42.86
Alexandria	18	88	20.45
South Sinai	4	22	18.18
Aswan	6	34	17.65
Beni Suef	16	92	17.39
Suez	5	32	15.63
Menoufia	24	163	14.72
Beheira	21	203	10.34
New Valley	4	47	8.51
Cairo	4	49	8.16
Fayoum	34	519	6.55
Dakahlia	47	794	5.92
Assiut	35	745	4.70
Red Sea	2	43	4.65
Qena	29	690	4.20
Ismailia	4	111	3.60
Gharbia	53	1 610	3.29
North Sinai	6	184	3.26
Kafr el Sheikh	9	291	3.09
Giza	15	590	2.54
Minya	55	2 356	2.33
Sharkia	5	318	1.57
Damietta	5	363	1.38
Qalyubia	5	442	1.13
Sohag	5	1 009	0.50

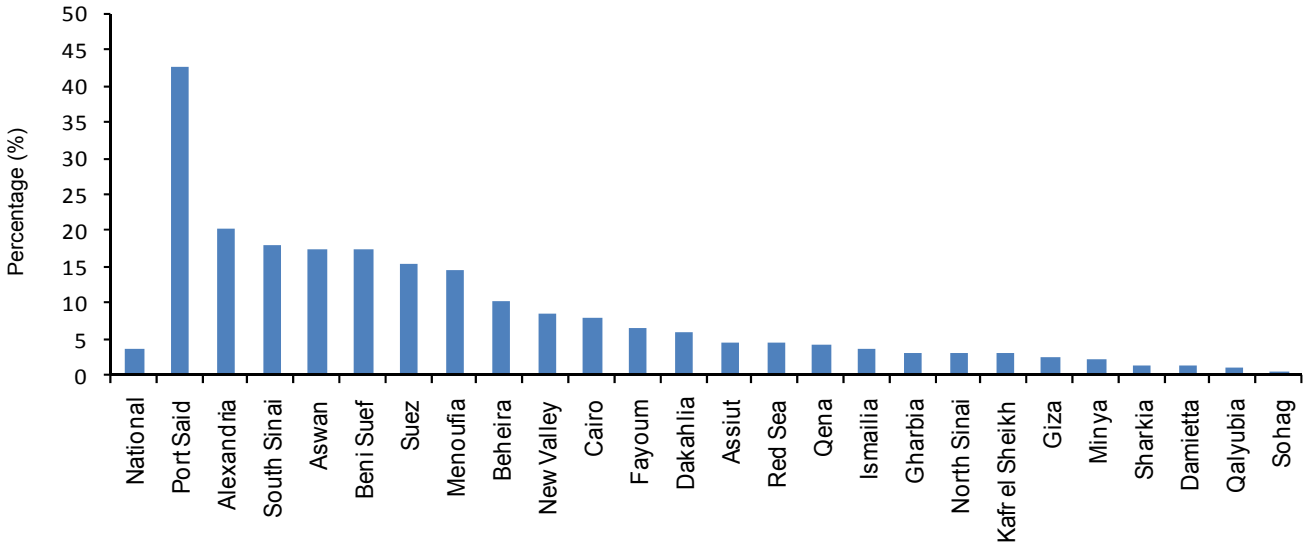

Figure 32. Hospital admission rates due to falls among children aged 5–9 years, 2009

Hospital admission rates due to homicide in males, 2009 (Table 31 and Figure 33)

Table 31. Hospital admission rates due to homicide in males, 2009

Governorate	Numerator	Denominator	Indicator value
National	142	79 905	0.18
Port Said	4	80	5.00
North Sinai	9	959	0.94
Menoufia	13	1 652	0.79
Beni Suef	6	884	0.68
Aswan	4	665	0.60
Red Sea	3	615	0.49
Alexandria	9	1 985	0.45
Suez	2	475	0.42
Cairo	2	519	0.39
Beheira	11	2 857	0.39
Helwan	4	1 137	0.35
Assiut	13	4 073	0.32
Giza	8	2 610	0.31
South Sinai	2	793	0.25
Ismailia	2	851	0.24
New Valley	1	507	0.20
Fayoum	4	2 640	0.15
Kafr el Sheikh	5	3 327	0.15
Qena	6	4 484	0.13
Dakahlia	6	6 587	0.09
Sharkia	2	2 366	0.08
Damietta	3	3 579	0.08
Gharbia	8	10 813	0.07
Minya	8	12 350	0.06
Qalyubia	3	6 177	0.05
Sohag	2	4 726	0.04
Luxor		9	–

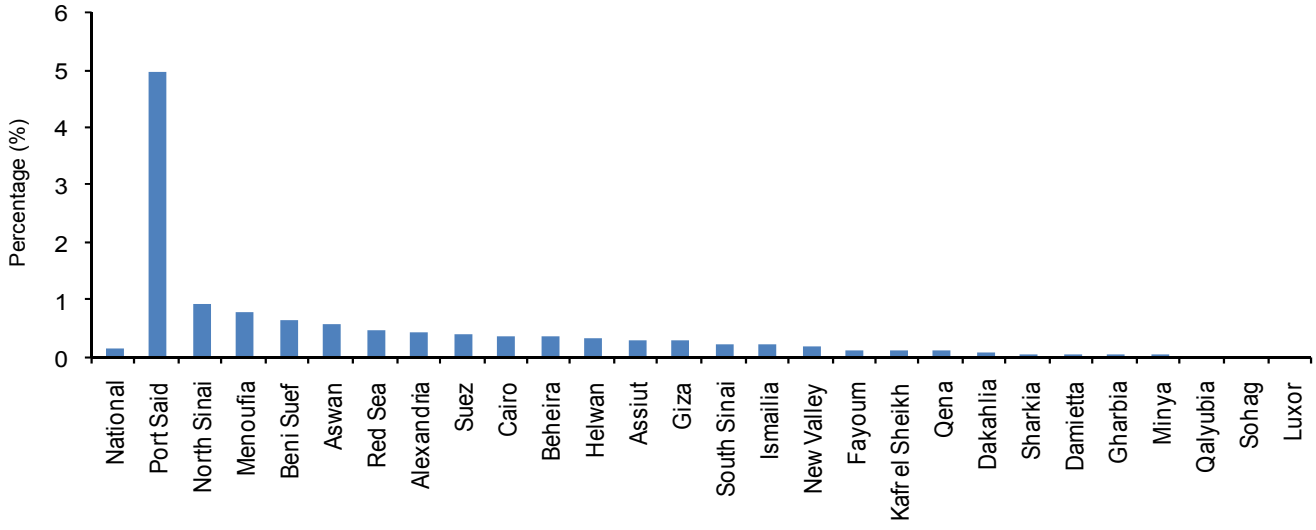

Figure 33. Hospital admission rates due to homicide in males, 2009

Hospital admission rates due to homicide in females, 2009 (Table 32 and Figure 34)

Table 32. Hospital admission rates due to homicide in females, 2009

Governorate	Numerator	Denominator	Indicator value
National	99	33 624	0.29
North Sinai	7	204	3.43
Port Said	1	38	2.63
Suez	2	97	2.06
Menoufia	9	510	1.76
Beni Suef	4	444	0.90
Aswan	1	114	0.88
Alexandria	4	576	0.69
Helwan	2	289	0.69
Beheira	6	922	0.65
South Sinai	1	165	0.61
New Valley	1	172	0.58
Giza	4	750	0.53
Assiut	10	1 911	0.52
Cairo	1	249	0.40
Qena	6	1 665	0.36
Fayoum	4	1 230	0.33
Ismailia	1	340	0.29
Kafr el Sheikh	4	1 513	0.26
Dakahlia	5	2 414	0.21
Minya	9	6 494	0.14
Gharbia	8	5 813	0.14
Qalyubia	3	2 554	0.12
Damietta	1	891	0.11
Sharkia	1	996	0.10
Sohag	2	2 510	0.08
Luxor	–	11	–
Red Sea	–	180	–

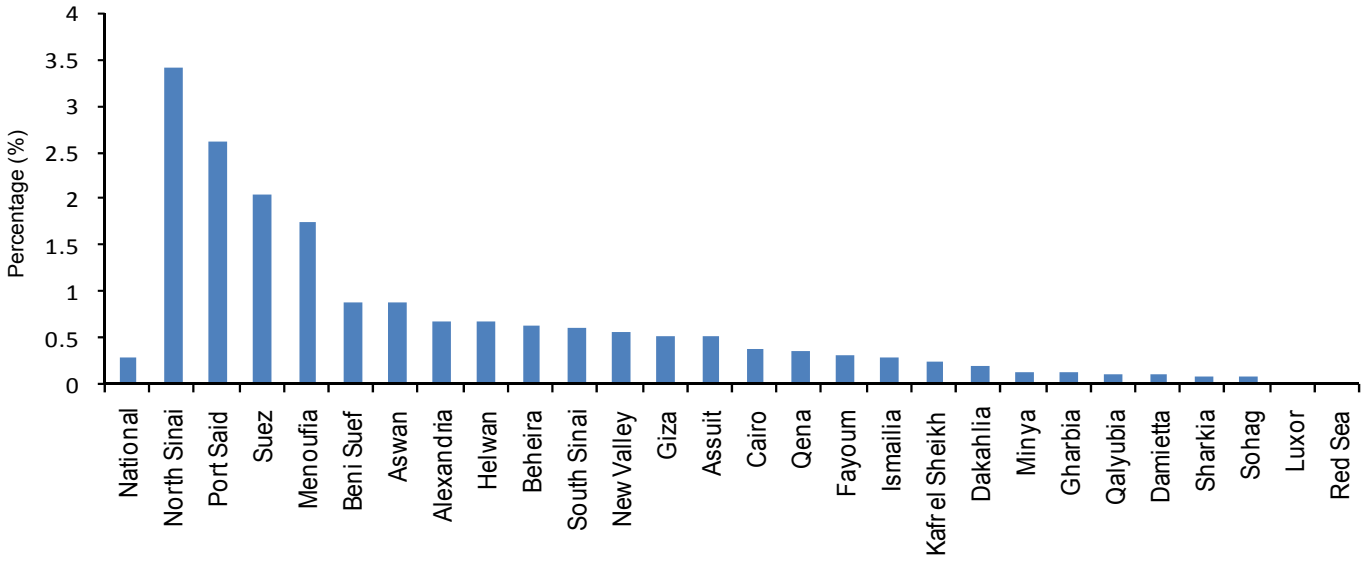

Figure 34. Hospital admission rates due to homicide in females, 2009

Hospital admission rates due to drowning in children 0–4 years, 2009 (Table 33 and Figure 35)

Table 33. Hospital admission rates due to drowning in children –4 years, 2009

Governorate	Numerator	Denominator	Indicator value
National	46	13 823	0.33
Qalyubia	12	352	3.41
Ismailia	3	94	3.19
Beni Suef	4	126	3.17
North Sinai	10	326	3.07
Aswan	1	41	2.44
Cairo	1	78	1.28
Kafr el Sheikh	3	531	0.56
Fayoum	3	672	0.45
Sohag	4	983	0.41
Menoufia	1	283	0.35
Qena	2	694	0.29
Damietta	1	376	0.27
Gharbia	1	2 404	0.04
Alexandria	0	728	–
Assiut	0	831	–
Beheira	0	319	–
Dakahlia	0	890	–
Giza	0	966	–
Luxor	0	2	–
Minya	0	2 378	–
New Valley	0	53	–
Port Said	0	12	–
Red Sea	0	28	–
Sharkia	0	333	–
South Sinai	0	25	–
Suez	0	22	–

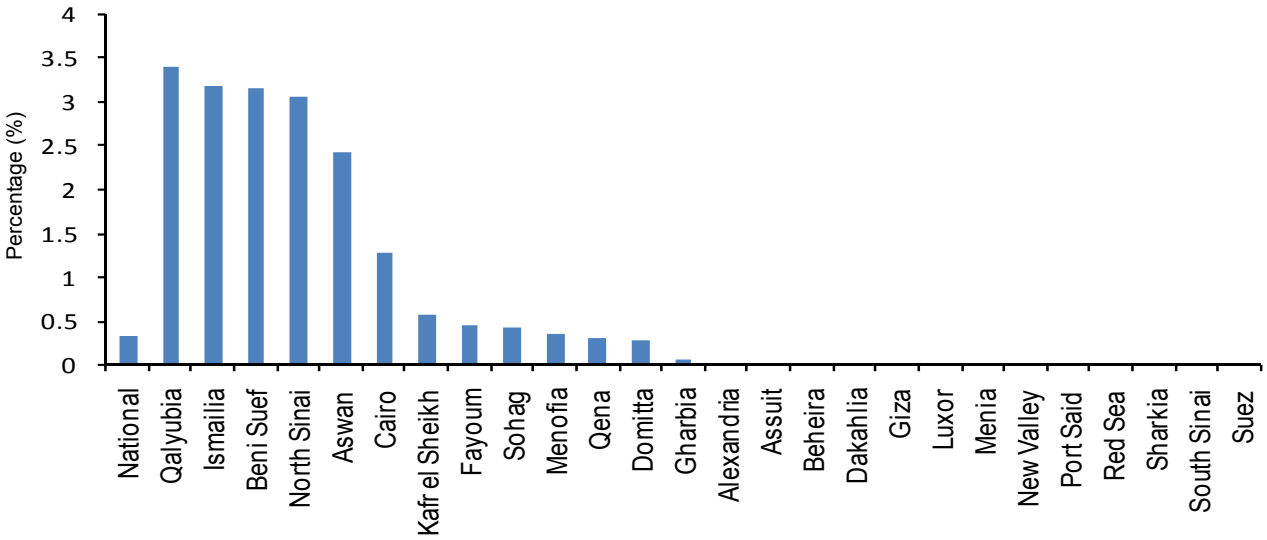

Figure 35. Hospital admission rates due to drowning in children 0–4 years, 2009

6. References

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