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Original Research

Deaths among homeless in northern Tunisia: a 10-year study (2005–2014)

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ABSTRACT

Objective: To analyze the victims profile related to death among homeless people.
Study design: A descriptive, retrospective, and cross-sectional study.
Methods: We included all deaths among homeless people that occurred during a 10-year period (2005–2014) that were autopsied in the Department of Legal Medicine of the Charles Nicolle Hospital of Tunis. Causes of death were classified according to the International Statistical Classification of Diseases and Related Health Problems 10th Revision. Data were classified in three sections: sociodemographic data, circumstances of death, and autopsy findings. A univariate data analysis was performed.
Results: The sex ratio (M/F) was of 7.45. The average age was of 59 years. The majority of deaths (80.9%) occurred in the metropolis of Tunis with a significant occurrence of cases in other governorates after the 2011 revolution ($P = 0.002$). Deaths occurred more often during winter (34.8%). The bodies were frequently discovered in public places (36.0%) and private locations (34.0%). The deaths of 55.3% of cases were attributed to natural causes, significantly affecting the elderly, whereas the accidental causes (25.7%) were more frequent before the age of 49 years, followed by suicides (3.9%) and homicides (3.3%).
Conclusions: Our study highlighted a phenomenon not yet studied in Tunisia. Our results highlight an urgent need for preventive measures focused on the improvement of healthcare measures among homeless people.

Introduction

In spite of the higher mortality rate among homeless people than among the general population in developed countries, little information is available about the mortality of the homeless in the developing countries. Most previous studies were carried out in Europe and North America. Homeless mortality in a broader range of cultures should be explored.

Busch-Geertsemam[1] defined homelessness as an exclusion from three domains: (i) inadequate dwelling to live and fit

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for habitation (physical domain); (ii) inability to enjoy a private and safe space for social relations (social domain); and (iii) lack of a legal title to occupation (legal domain).

Higher rates of death among homeless men were reported worldwide, with a sex ratio between 2.56 in Canada and 41.7 in Fulton County.[2–6] The average age was between 35 years in the United Kingdom and 61.5 years in Tokyo, Japan,[7–9] while it ranged between 42 years and 44 years in Turkey and India, respectively.[3,10–12] In some studies, young people[5,13] and women[6,14,15] were more exposed to excessive risk of mortality among the homeless. Natural causes, which were due to a disease process, were the most common causes of premature death in homeless people, including infections (tuberculosis, HIV), ischemic heart disease. Other external factors were also reported such as unintentional injuries, suicides, homicides, substance misuse and poisoning (from medication and illicit substances). The exposure to risk factors, including smoking, alcohol, drug abuse, and mental illness could explain this excess of mortality.[6] This risk of homelessness is increased due to mental health and substance misuse disorders. Poor nutrition, exposure to unintentional injuries and infectious diseases, severe poverty, and the increased rates of tobacco use also exacerbate the poor health status of the homeless.[6] In addition, access to medication for these individuals is usually inadequate.[2,3,8,16]

Tunisia is a developing country that has been suffering from an ever-increasing cost of living since the global financial crisis in 2008 followed by the revolution in 2011, which worsened the economic situation of the population. These findings could suggest a growing number of homeless and possibly a higher mortality rate among them. In fact, in a general population of 10.9 million people,[17] the total number of homeless cases is estimated to be around 3000 cases according to civil society activists.[18] However, there has been no previous study in Tunisia on reported cases and causes of death occurring among homeless persons. In spite of the special interest carried out by the media and civil society to this social phenomenon, no official statistics were recorded about the homeless population. The aim of our study was to analyze the sociodemographic features and characteristics related to deaths among homeless people.

Methods

We describe a retrospective, descriptive, cross-sectional study conducted at the Department of Legal Medicine in the Charles Nicole Hospital of Tunis over a 10-year period (January 1, 2005 until December 31, 2014). Our Department is located in the main hospital serving homeless people. It is the only center covering the medico-legal activities of 10 out of 11 governorates in northern Tunisia, namely Tunis, Ben Arous, Manouba, Ariana, Beja, Kef, Jendouba, Siliana, Zaghouan, and Bizerte, covering about 42.0% (4.6 millions) of the total population.[17] The average number of medico-legal autopsies, which are defined by violent deaths, including death after an intoxication, as well as suspicious and sudden death, reached ~1700 autopsies per year. The study population consisted of 152 cases of homeless mortality.

We included all cases of homeless persons as defined by Busch-Geertsemam,[1] who were recognized by neighbors or local authorities as homeless, and their corpses were either discovered recently after death or later in a putrefaction stage. We excluded 26 cases of persons living in social isolation and/or insecure housing, unknown and unclaimed bodies, and where the homeless person could not be identified, to limit the selection biases.

Data were collected from the archives of the Medico-Legal Department (medico-legal autopsy reports and from medical history records when available), the deceased relatives' or neighbors' commemoratives when available, and the statements and records of the judicial police.

Causes of death were classified according to the International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10).[19]

Data were classified in three sections

i. Sociodemographic data: gender, age, medical history, mental disease history, and habits (tobacco, alcohol and drugs addiction) (as defined in Chapter V of the ICD-10[19]).
ii. Circumstances of death: date and season, place of death (private places were represented by makeshift houses), governorate (the four governorate of the metropolis of Tunis, the capital, or the six other governorates), the person discovering the corpse, and hospitalization before death and its duration.
iii. Autopsy findings: type and site of lesions, whether traumatic lesions were fatal or not, cause of death, toxicological study results, and manner of death (disease, accident, suicide or homicide).

Data related to the exact age, medical history, mental disease history, habits, location of death, and person reporting the death were missing in 4.0%–89.5% of cases. Toxicological samples were taken in 66 cases; however, results were missing in 75.7% of cases.

We were not able to compare the demographic data and autopsy findings between homeless and other people as these data were lacking in the general population mortality report.

Statistical analysis

For statistical analysis, we used the Student *t*-test for means comparison, the Chi-squared test to compare qualitative variables, and non-parametric tests (Mann Whitney U test and Kruskal–Wallis test) in cases of non-applicability of the previous tests. Statistical tests were used with a risk of statistical error set at 5%.

Results

Sociodemographic data

The total number of medico-legal deaths during the period of study was 16,758 autopsies, including 152 cases of homeless people giving a proportion of 9.1 homeless deaths per 10,000 autopsies.