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### **Artículo Original**

### Clinical and Epidemiological Characteristics of Suicides Committed in Medellin, Colombia

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### ABSTRACT

Background: The purpose of this study was to identify the characteristics of individuals who committed suicide in Medellín between 2008 and 2010, and to identify variables related to the type of events.

Methods: A retrospective and descriptive analysis was conducted on data provided by the National Institute of Legal Medicine and Forensic Sciences. In addition, a univariate and bivariate analysis was used to identify the sociodemographic and medical-legal characteristics of the deceased. Multiple correspondence analysis was also used in order to establish typologies. The information was analyzed using STATA 11.0.

Results: Of the 389 cases occurring between 2008 and 2010, 84.6% (n = 329) were men. The male to female ratio was 5:1; 64% of the cases occurred in people aged 18-45 years; 6.7% occurred in children under 18, with hanging being the method most chosen by the victims (48.3%). Exploratory analysis was used to identify a possible association between the use of violent methods and events occurring in the housing and social strata 1, 2 and 3.

Conclusions: Some factors could be associated with suicide, providing data that could consolidate health intervention strategies in our population.

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### Características clínicas y epidemiológicas del suicidio consumado en Medellín, Colombia

RESUMEN

Palabras clave: Suicidio Características sociodemográficas Antecedentes: El propósito del estudio es identificar las características de los individuos que cometieron suicidio en la ciudad de Medellín entre 2008 y 2010, además de identificar variables relacionadas con la tipología de los eventos.

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Métodos: Análisis descriptivo retrospectivo de los datos suministrados por el Instituto Nacional de Medicina Legal y Ciencias Forenses. Además, análisis univariable y bivariable para identificar las características sociodemográficas y médico-legales de los fallecidos. Para establecer posibles tipologías, se utilizó el análisis de correspondencias múltiples. La información se analizó utilizando el programa STATA 11.0.

Resultados: De los 389 casos ocurridos entre 2008 y 2010, el 84,6% (n = 329) correspondió a varones. La razón varones:mujeres es 5:1. El 64% de los casos ocurrió en personas de 18-45 años y el 6,7%, en menores de 18 años. El ahorcamiento fue el método más elegido por las víctimas (48,3%). El análisis exploratorio permitió identificar una posible asociación entre el uso de métodos violentos con los eventos que ocurren en la vivienda y los estratos sociales

Conclusiones: Se pudo delinear algunos factores asociados al suicidio consumado, aportando elementos que pueden consolidar estrategias de intervención en la salud de nuestra población.

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#### Introduction

Suicide has been defined by the World Health Organization (WHO) as a "deliberate act by which a subject commits suicide, with knowledge or expectation of a fatal outcome...".1 According to O'Carroll et al (1996), there are three types of suicidal behavior: a) instrumental, in which the person has not tried to kill him/herself and wants to pretend otherwise for personal gain; b) attempted suicide, where the person tries to self-provoke death, without obtaining it, and c) suicide, in which there is evidence, express or implied, that the injury was self-inflicted.<sup>2</sup>

Suicide is considered a global public health problem in the world;<sup>3</sup> a report the Pan–American Health Organization (PAHO) on violence and health noted that in 2000 some 815 000 people died by this cause worldwide, representing a global annual mortality rate of 14.5 per 100 000 people, which amounts to 1 death every 40 s;4 however, suicidal behavior varies across countries and even between regions with similar levels of development.5

Colombia has revealed a significant increase in cases since 1998, from 1.3 to 5.5 events per 100 000 persons in 2002.6 Between 2008 and 2010, the average rate of suicide in men was 6.0 per 100 000 persons, while in women it ranged from 3,6 to 4,1 per 100 000 people. By 2011, according to preliminary data from the National Institute of Legal Medicine and Forensic Sciences (NILMFC) 1625 cases occurred, representing a rate of 3.5 per 100 000 persons. Medellin is the municipality with the second highest number, 114 in 2011 is equivalent to a rate of 4.8 per 100 000, higher than the national average.<sup>7</sup>

Suicidal behavior is explained from the confluence of environmental and biological variables that contribute to susceptibility to commit suicide. Among the environmental variables are: the presence of unstable and insufficient socioeconomic factors, dysfunctional family dynamics, difficulties in social inclusion, expression of violence and abuse in early childhood, 8,9 abuse of drugs or alcohol and contexts of emotional vulnerability in the development of interpersonal relationships. For biological variables an inheritability ranging from 40-50% has been reported, and for suicidal behavior there is converging evidence from different approaches including familial transmission, twin and adoption studies with candidate genes and genomic scans supporting a strong genetic contribution to suicidal behavior. 10-12

These findings allow to infer how genetics contribute to the expression of bizarre behavior associated with suicide, however the complexity presented in the suicidal phenotype justifies hitherto controversial results of the research, which have failed to replicate consistently and discriminate specific molecular pathways for behavior and for the type of suicide. 13

The purpose of this study was to identify the characteristics of individuals who committed suicide in the city of Medellin, in the periods between 2008 and 2010, and to identify variables related to the type of events to generate information to better understand this problem and contribute to building prevention strategies in public health and to outline approaches a posteriori that integrate aspects of clinical phenotypes of suicide.

### **Materials and Methods**

A retrospective analysis conducted with information provided by the Northwestern region of Medellin, Antioquia, Regional Reference Center on Violence (NILMFC). The source of the data was the platform SIRDEC —web system of missing people and cadavers—wherein cases handled by this institution are registered. A quality and consistency verification over the obtained data by the comparison of the information registered in some of the expert reports of necropsy. The subjects born in the department of Antioquia were studied, with those deceased by suicide in the city of Medellin, between 2008 and 2010; the analyzed variables were the sociodemographic characteristics, cause and place of death. For the calculation of the specific rates by age, proportional adjustments by age groups starting with the data of the population projection by years estimated by National Administrative Department of Statistics (DANE). We performed univariate and bivariate analysis to identify the sociodemographic and medical-legal deaths from suicide. The

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