

EPIDEMIOLOGICAL AND HEALTH SCIENCES
ORIGINAL ARTICLE**Characterization of suicidal behavior in Cuba, 2011-2014**
Caracterización de la Conducta suicida en Cuba, 2011-2014

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ABSTRACT

Introduction: Suicidal behavior includes suicide attempt and consummated suicide. A total of 804 000 deaths by suicide were registered in the world in 2012. In Cuba, suicide is the ninth cause of death and the third one in the group of 10-19 years of age.

Objective: To characterize suicidal behavior in Cuba from 2011 to 2014.

Material and methods: The sampling universe was composed of all registries of morbidity by suicide attempt and the registries of mortality by suicide, taken from the database of the Direction of Registry and Statistics of the Cuban

Ministry of Public Health, from 2011 to 2014. The variables were: sex, age for the attempt, skin color, occupation, and the method used for suicide. The accumulated morbidity and mortality rates were calculated by groups of ages per 100 000 inhabitants as well as the gross-, adequate-, - and sex-specific rates; the man-woman cause of mortality; and the attempt-suicide relationship. The relative change (percentage) was calculated, as well as the percentages according to the variables.

Results: A total of 53 764 suicide attempts were reported, for an accumulated rate of 126.2 per

100 000 inhabitants. The female sex presented 37 617 (70 %). The attempt-suicide relationship was 9.1. A total of 5942 deaths by suicide were reported, for an accumulated rate of 14.8 per 100 000 inhabitants. The occupation that predominated was the retired one (29.8%), and the most used method was hanging (76.4%).

RESUMEN

Introducción: La conducta suicida incluye el intento suicida y el suicidio consumado. En 2012, se registraron en el mundo 804 000 muertes por suicidio. En Cuba, el suicidio es la novena causa de muerte y la tercera en el grupo de 10-19 años.

Objetivo: Caracterizar la Conducta Suicida en Cuba desde 2011-2014.

Material y Métodos: El universo estuvo constituido por todos los registros de morbilidad por intento y los de mortalidad por suicidio de las bases de datos de la Dirección de Registros y Estadísticas del Ministerio de Salud Pública de Cuba, desde 2011 al 2014. Las variables fueron: sexo, edad para el intento y además color de la piel, ocupación y método empleado en el suicidio. Se calcularon las tasas acumuladas de morbilidad y mortalidad por grupos de edades por 100 000 habitantes, las tasas bruta, ajustada y específica por sexo, la razón de mortalidad

INTRODUCTION

The World Health Organization (WHO) defines "suicidal act" as the action in which an individual causes damage to himself, regardless of the degree of lethal intent and whether or not true motives are known.^{1,2}

This behavior includes suicidal ideation, which are the desires, thoughts, and plans to commit

Conclusions: Females are more affected by attempts whereas suicide is more common in males. The attempt-suicide relationship decreases as age increases.

Keywords: suicide attempt, suicide, self-inflicted lesions, suicidal behavior.

hombre/mujer y la relación intento/suicidio. Se calculó el porcentaje de cambio relativo y los porcentajes según las variables.

Resultados: Se reportaron 53 764 intentos suicidas, para una tasa acumulada de 126.2 por 100 000 habitantes. El sexo femenino aportó 37 617 (70%). La relación intento y suicidio fue de 9.1. Se reportaron 5 942 fallecidos por suicidio para una tasa acumulada de 14.8 por 100 000 habitantes. La ocupación que predominó fue en los jubilados (29.8%) y el método más empleado fue el ahorcamiento (76.4%).

Conclusiones: El sexo femenino es el más afectado en el intento y en el suicidio, el masculino. La relación intento y suicidio disminuye a medida que se incrementa la edad.

Palabras claves: Intento suicida, suicidio, lesiones autoinfligidas, conducta suicida.

suicide; consummated suicide (the act of killing himself/herself in a conscious way, considering the death as an aim; suicidal attempt (voluntary act carried out by a person with the intention of provoking the death, without achieving it); and parasuicide (non-lethal self-injurious behavior accomplished by the individual in which the intention to die or death orientation is not essential).³

Suicide attempts are more frequent than suicides, with an evidence of 30 suicide attempts per suicide in the general population.^{4,5}

During the last decades, suicide has shown an increase worldwide. In the Americas, suicide reported 12 % of mortality due to external causes, with 63 000 deaths annually.⁶

The WHO developed a campaign to reduce suicide rates to a 10 % for 2020 in all countries.⁷

The Pan American Health Organization (PAHO) has increased its efforts to approach this problem, and it included suicide in its Strategic Plan (2014-2017) as one of the impact indicators to be evaluated in the region of the Americas.^{7,8}

In this plan, it is recommended to strengthen research; mortality is not only discussed, but

suicide attempts are also included, as well as the social and cultural factors that influence on this problem. The aim is to strengthen the surveillance systems.

The frequency of suicide attempts is increasing and conditioning high mortality due to consummated suicides. Suicide is a health problem because of the impact that it causes in the social, psychological, and economic fields in families and the country.⁹

In Cuba, suicide was considered the ninth cause of death in the general mortality chart, and occupied the third place in the 10-19 years old age group in 2014.¹⁰

OBJECTIVE

This study is aimed at characterizing suicidal behavior (attempts and suicides) in Cuba from 2011 to 2014.

MATERIAL AND METHODS

A mixed-method and ecologic study was conducted. The data sources were: morbidity caused by suicide attempts registered by the Compulsory Disease Declaration Card (EDO); and mortality caused by suicide, registered in the database form the Direction of Registry and Statistics (DNE) of the Cuban Ministry of Public Health (MINSAP) from January 1st 2011 to December 31st, 2014.

The following variables were used for the suicide attempt:

- Sex: male; female.
- Age: >20 years; 20–59 years; <60 years.

The variables presented below were used for suicide:

- Skin color: white, mixed race (mestizo), black,

ignored.

- Marital status: steady couple, steady without couple, ignored.

- Occupation or work situation: retired and pensioned, unemployed, housewife, farmer and fisherman, unskilled worker, other occupations (including young people from the military service, workers of the armed forces, and those people who didn't declare their occupation and people at working ages), qualified worker, people with non-working status by age; service worker; disabled, student, professional and technician, machine operator, scientist or intellectual, manager, and office worker.

- Methods used for suicide: hanging, poisoning, by fire, jumping from heights, shooting, using

sharp objects, jumping in front of vehicles, suffocation, and others (voluntary injury by some other means, collision, and sequelae).

We asked for authorization to the Direction of Registry and Statistics (DNE) of the Cuban Ministry of Public Health (MINSAP) for the collection of information in order to conduct this research. The main source of data collection was the Compulsory Disease Declaration Cards (for the suicide attempts), and the death certificates to get data about suicide. Codes for the international classification of diseases CIE¹⁰: X60–X84 were used for the classification of mortality (intentional self-inflicted injuries).¹¹

Cumulative rates adapted to age groups were calculated for the suicide attempt and suicide: Gross Morbidity and mortality rates were calculated, adjusted specifically for sex and age groups, women/men, and attempt/suicide rates. The rates were calculated per 100 000 inhabitants. Standardization of rates was carried out according to age groups and sex by the direct

method; the standard Cuban population in 2012 was the selected group for the study.

The relative change for the series was calculated, and percentages were used to express data with regard to the variables of sex; age; attempt; occupation; and the methods used for suicide. These percentages were also used to indicate the respective loading of these groups. Decoders of the DNE were used for the previously mentioned variables. Data was compiled in Excel® database, and processed in an automated way to make the tables and figures.

Registries on morbidity and mortality were only used. Anonymity of the deceased people remained while obtaining the necessary data, which were only used to fulfill the purpose of this research, whose conduction was approved by the Ethics Committee of the National Institute of Hygiene, Epidemiology, and Microbiology (INHEM).

RESULTS

A total of 53 763 suicide attempts were reported during the study period (13 441 attempts per year as a general average), which represented a gross rate of attempts of 126.2 per 100 000 inhabitants. The cumulative rates by sex were

178.5 per 100 000 inhabitants for the female sex, whereas it was 76.5 per 100 000 inhabitants for the male one. The female sex reported 37 617 attempts (70 %) of the total of attempts (Table 1).

Table 1. Reported cases of attempts and deaths from suicide, according to the selected variables

Characteristics	Sex					
	Male		Female		Total	
	No.	%	No.	%	No.	%
Suicide attempt						
Sex	16146	30.0	37617	70.0	53763	100.0
Age						
5- 19 years	4059	7.6	15679	29.2	19738	36.7
20 - 59	10787	20.1	19749	36.7	30536	56.8

60 years and over	1298	2.4	2187	4.1	3485	6.5
Ignored	2	0.0	2	0.0	4	0.0
Suicide						
Sex	4745	79.9	1197	20.2	5942	100.0
Age						
19 years and under	107	1.8	42	0.7	149	2.5
20 - 59	2637	44.4	618	10.4	3255	54.8
60 years and over	1999	33.7	537	9.0	2536	42.7
Ignored	2	0.0	0	0.0	2	0.0
Skin color						
White	3282	55.3	842	14.2	4124	69.4
Black	489	8.2	124	2.1	613	10.3
Mixed-race	946	15.9	228	3.8	1174	19.8
Ignored	26	0.4	3	0.1	29	0.5
Marital status						
With steady partner	2490	41.9	536	9.0	3026	50.9
Without steady partner	1544	26.0	454	7.6	1998	33.6
Ignored	709	11.9	207	3.5	916	15.4
Occupation						
Retired/Pensioned	1522	25.6	249	4.2	1771	29.8
Non-working population	813	13.7	29	0.5	842	14.2
Housewives	0	0.0	584	9.8	584	9.8
Agriculture/Fishing	509	8.6	8	0.1	517	8.7
Non- skilled workers	397	6.7	30	0.5	427	7.2
Other situations	363	6.1	62	1.0	425	7.2
Non-working age	330	5.6	100	1.7	430	7.2
Other qualified workers	231	3.9	11	0.2	242	4.1
Disabled	119	2.0	4	0.1	123	2.1
Professionals/Technicians	84	1.4	42	0.7	126	2.1
Service workers	79	1.3	16	0.3	95	1.6
Students	67	1.1	29	0.5	96	1.6
Scientists /Intellectuals.	61	1.0	21	0.4	82	1.4
Machine operator	85	1.4	0	0.0	85	1.4
Leaders	71	1.2	2	0.0	73	1.2
Office workers	12	0.2	10	0.2	22	0.4
Methods used for suicide						
Hanging	4020	67.7	517	8.7	4537	76.4
Poisoning	266	4.5	269	4.5	535	9.0
Fire	92	1.5	304	5.1	396	6.7
Jumping from heights	105	1.8	53	0.9	158	2.7
Sharp objects	86	1.4	18	0.3	104	1.8
Shooting	98	1.7	4	0.1	102	1.7
Objects in movement	28	0.5	10	0.2	38	0.6
Suffocation	24	0.4	12	0.2	36	0.6
Others	13	0.2	1	0.0	14	0.2
Collision	9	0.2	5	0.1	14	0.2
Sequelae	2	0.0	4	0.1	6	0.1

Adjusted rates of suicide attempts began in 2011 at 139.9 per 100 000 inhabitants, and diminished to 116.8 per 100 000 inhabitants in 2014; the reduction percentage was 16.5%.

The group aged 10-19 years reported 19 738 attempts for a cumulative rate of 235.5 per 100 000 inhabitants. The adjusted rate was 274.4 per 100 000 inhabitants in 2011, whereas it decreased to 215.6 per 100 000 inhabitants in 2014. The reduction percentage was 21.4.

The group aged 20- 59 years reported 30 536 attempts for a rate of 116.4 per 100 000 inhabitants. The adjusted rate was 125.2 per 100

000 inhabitants in 2011, whereas it was 108.8 per 100 000 people in 2014, for a reduction of 13.1.

The group aged 60 years and over reported a total of 3 485 suicide attempts for a cumulative rate of 43.6 per 100 000 inhabitants. In 2011, the adjusted rate was 47.3 per 100 000 inhabitants, whereas it was 39.8 per 100 000 inhabitants in 2014, for a reduction percentage of 15.9.

In general, the relationship between suicide and attempts was 9.0 in this study. It was 3.4 in the male sex, whereas the female sex showed 31.4. (Table 2).

Table 2. Attempts/ suicides ratios according to sex and age groups

Attempts/ suicides ratios						
Years	Male	Female	5 - 19 years	20-59 years	60 years	Total
2011	3.4	33.9	141.5	9.4	1.5	9.7
2012	3.5	33.8	135.1	9.8	1.3	9.4
2013	3.4	29.4	120.5	9.3	1.3	8.5
2014	3.3	28.6	131.8	9.0	1.4	8.5
Total	3.4	31.4	132.5	9.4	1.4	9.1

As regard to suicides from 2011 to 2014, 5 942 deceased were reported (1 485 per year as a general average); which represented a cumulative rate of 14.8 per 100 000 inhabitants for the entire period.

The study comprised 4 745 males for a cumulative rate of 23.8 per 100 000 inhabitants, and 1 197 deceased females, for a rate of 6.0 per 100 000 inhabitants.

The adjusted rate at the beginning of the period was 15.2 per 100 000 inhabitants whereas it was 13.9 in 2014, for a reduction of 8.6%.

The group aged 19 years and under presented 149 deceased (Table 1). During the entire period, the average rate was 2.6 per 100 000 inhabitants. The adjusted rate began in 2.8, and decreased in 2014 to 2.3 per 100 000 inhabitants for a 17.1% reduction.

The 20-59-year-old group presented 3 255 deceased (Table 1). The cumulative rate was 12.4 per 100 000 inhabitants for the entire period. It began in 2011 with an adjusted rate of 13.3, and finished in 2014 with 12.2 per 100 000 inhabitants (8.3% reduction).

The group aged 60 years and over showed the highest mortality, which contributed to 2 536 deaths, with a cumulative rate of 31.7 per 100 000 inhabitants. The adjusted rates were from 30.6 to 28.5 per 100 000 inhabitants in 2011 and 2014, respectively. The reduction percentage was 7.1%.

The 29.8% of suicides occurred among the retired or pensioned. The white people represented the 69.4%; and according to the marital status, the ones that had a steady partner represented a 50.9%.

The most used method for suicide was hanging, which comprised 76.4% of the cases. (Figure)

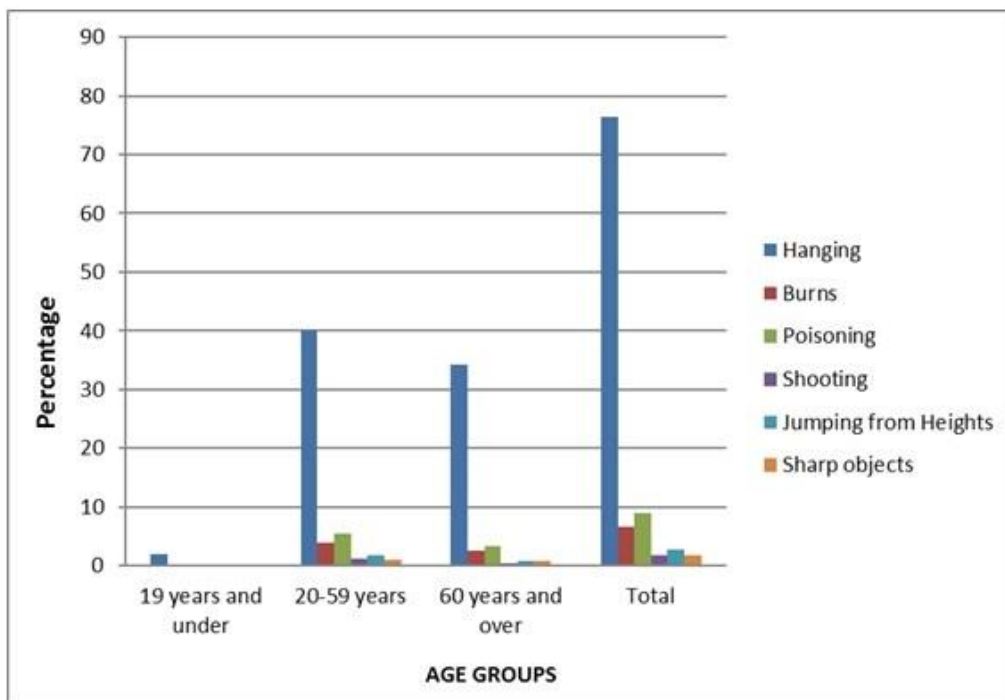


Figure. Suicide methods used according to age groups

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DISCUSSION

The group aged 19 years and under was the one that presented the lowest rate and percentage in suicide, and the one who had the highest rate of suicide attempt, which coincides with other researches that report that suicide attempts are more frequent in young people and diminish with the advance of age.^{12,13}

With regard to sex, women were the most affected ones, corresponding with other studies that report that the attempt rates are higher in women, whereas the suicide rates increase in men.^{13,14}

In Spain, 66.4 % of attempts were reported in the female sex, a smaller number than the one studied; it was also reported that women attempt to do it three times more than men, generally.¹³

The highest attempt-suicide relationship occurred in the people under 19 years of age, which coincides with other studies that have reported that the attempt is more frequent during late adolescence.^{12,13}

In Cuba, the attempt-suicide relationship for all age groups is lower than the reported in other studies that show a relationship of 20 attempts for 1 suicide or 30 attempts for 1 suicide.¹²

A study conducted in Spain coincides with the results obtained and reports that there are from 8 to 25 suicide attempts per consummated suicide. The relationship between the number of

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attempts and suicides in this study varies according to age. In Spain, it was reported that, in adolescents, this relationship is estimated to be 1 suicide for every 100 or 200 suicide attempts; 1 suicide for every 25 attempts in middle-aged people; and 1 suicide for every 4 attempts in the elderly, representing lower figures than the ones found in this study.¹³

In Cuba, there is a National Program for the Prevention of Suicidal Behavior that establishes a follow-up and control of all patients who make a suicide attempt in order to evaluate, and treat them in an appropriate and specialized way, avoiding suicide; which is a strength for the prevention of this behavior.¹

In this study, the highest rate of suicide was in 2011. The rate of suicide reported by the WHO in 2012 was 11.6 per 100 000 inhabitants, 15 suicides in men and 8 in women; the rates in Cuban men is higher than the ones reported in this study.¹⁵

Although the rates for suicide have reduced in Cuba, they are even higher than the ones presented in the Report on the Americas in 2014, where the rate for men was 12,6 whereas it was 3,4 per 100 000 inhabitants for women. In this report, Cuba presented numbers above those rates; 15.5 were reported in men, and 4,4 per 100 000 inhabitants in women.^{16,17}

In our country, the male sex is the most affected by suicide, which coincides with other researches that report that 77.3 % of deaths occur in males.^{13,18} Mortality rate due to suicide has increased in Cuba, which explains this behavior.¹⁹

On a global scale, the male sex has a higher suicide rate than women, with a 3,5-1 ratio, being mortality from suicide higher in them. There are some research studies that demonstrate that this is because the methods used by men are more violent and serious than the ones used by women.¹⁵

Women had lower rates, which was reported in another national research in which there was a 7.8 % reduction in women, versus 6.1 % in men.¹⁹

Suicidal behavior in adolescents is increasing frequently; there are some studies that report that family dysfunction, depression, alcohol and drugs consumption, bullying, and the use of technologies without supervision by adults, increase the risk of this behavior in this group.^{20,22}

The 20-59-year-old group showed the second highest cause of mortality, which coincides with other studies that report that this group contributed to a 60.5 % to mortality by suicide in Cuba. In the report of the Americas, the 20-44 years of age and the 45-49 subgroups of age presented rates of 9.2 and 11.9 per 100 000 inhabitants, representing lower figures than the ones found in this study.^{18,19}

The group aged 60 years and over had the highest rate, which coincides with other studies that report that the rates are higher in adults over 70 years.

There are other research studies that report that depression, the loss of a loved one, chronic diseases, and social deprivation are risk factors for this behavior in this age. The elderly made

less attempts, but had higher suicide rates, which coincide with other studies that report that in this age less signals are made, but more lethal methods are used.²³

Family and society should play an essential role to satisfy the needs of the elderly, mainly in Cuba where population ageing is one of the most important characteristics from the social and demographic point of view.¹⁹

With regard to occupation, the retired and the people with a non-working status were the most affected groups, which coincides with other national researches that report that low incomes, isolation, depression, and non-communicable chronic diseases are considered to be risk factors for this behavior. In Spain, a 40.4% of retired people with this behavior was reported, representing a greater number than the Cuban one.¹³ Suicide methods are influenced by socio-cultural factors.¹³ The most used suicide method reported in this study was hanging; it is the most common according to sex and age groups, and coincides with other studies conducted in the country and the region of the Americas where suicides by hanging showed lower numbers than the Cuban ones.^{18,19}

Poisoning occupied the second place, which coincides with the Report on mortality in the Americas that refers that the Spanish Caribbean occupied the second place with a greater number than the Cuban one.¹⁸

The main limitations in this study are related with the attempt; only variables related to age and sex were obtained, which did not allow to make an analysis of the rest of the variables. Decoders of the DNE are not updated for the variable "occupation". In the case of retirement, the previous age is maintained (55 years for

women and 60 for men). This influences on the results, because the age of retirement was prolonged in the country (60 years for women and 65 for men), and people who were still working could be classified as retired. There is no code for freelance or private workers, which is a new classification of occupation in the country. In other cases, the deceased people who were in

CONCLUSIONS

The rates of attempt and suicide have decreased. The relationship between suicide and attempts diminishes as age increases. Females

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the military service or had other occupations could not be defined; which did not allow to analyze the number of suicides that occurred in each case separately. However, regardless of these limitations identified, we consider that the study is important and necessary because it describes the characteristics of suicidal behavior in Cuba during a 4-year period.

are more prone to attempts whereas suicide demonstrated to be more predominant in males. Hanging is the most used method.

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