

Medico-Legal Autopsy of Suicidal Subjects: Exploration of Medical, Epidemiological and Sociopsychological Data

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Summary:

The objectives of the work were the exploration of suicide data in the autopsied population at the forensic medicine service of the university hospital center of Tizi-Ouzou province (Algeria), to describe the main medical, epidemiological and sociological characteristics of the suicides and to specify the different means used.

It is a retrospective and prospective study conducted over 04 years from January 1, 2015 to December 31, 2018, on the entire population of Tizi-Ouzou province victim of suicide, sent for forensic autopsy at the University Hospital of tizi- ouzou (Algeria).

The results of our work reveal that 224 suicides have been collected out of 919 autopsies performed, which represents almost 25% of our thanatological activity with a male predominance with 82.6%.

The incidence of suicide in the province of Tizi-Ouzou in our study is 05 per 100,000 inhabitants, for men it is 8.1 per 100,000 inhabitants against 1.9 per 100,000 inhabitants for women. The commune of Ouagnoune stands out with the highest rate at 23.25 out of 100,000 inhabitants, against the commune of Beni-Yenni, which recorded no deaths during this period.

The 25 to 34 age group is the most affected with an average age of 39.4 years. As for marital status, singles are the most affected category at 58.3%. The level of education is low, 82.7% of cases not in school or having a primary to medium level. 37% of suicides are professionally inactive, thus constituting a risk factor.

In our study, 74.4% chose hanging as a mean of suicide, confirming their strong suicidal intentionality. 37.7% of suicides have already made at least one suicide attempt with 44.6% having a psychiatric history under treatment in 57.3%.

The recognition of medical, epidemiological and sociological risk factors for suicide is decisive in the management of this suicidal phenomenon, which constitutes a major public health problem. A national suicide observatory is more than necessary in Algeria.

Key words: *Suicidal behavior, risk factor, victimology, Tizi-Ouzou, Algeria forensic medicine.*

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I. Introduction

In Algeria, talking about suicide is not easy; this question is taboo especially on the religious level. To break the taboo, only knowledge and information appear to be valid solutions. Thus, this work proposes to know the epidemiological parameters of suicide in the Tizi-Ouzou region which is located in Kabylia at 100 km from the capital of Algeria.

In addition, the development of strategies for the prevention and treatment of suicidal behavior necessarily requires a quality database on the subject of suicide. The lack of data at the national level, prompted us to consider a survey on this topic, in order to achieve the following objectives:

- The incidence of suicide in the general population of Tizi-Ouzou province
- The role of mental pathologies in the suicide population.
- Risk factors leading to suicide.
- The different mechanisms used in suicide by men and women.

II. Type of study

This is a retrospective and prospective study based on a sample of the suicide victim population in the province of Tizi-Ouzou, sent to the forensic medicine service of the university hospital center of Tizi-Ouzou (Algeria) for medical autopsy - legal at the request of the public prosecutor.

III. The Duration of the study

We conducted a retrospective study over three years, between January 1, 2015 and December 31, 2017, on the files of people who committed suicide, who underwent a forensic autopsy by the forensic medicine service of the CHU de Tizi - Ouzou (Algeria).

We supplemented by a prospective study over a year, between January 1, 2018 and December 31, 2018, on the cases of medico-legal autopsies of suicide people, practiced by the forensic medicine service of the CHU of Tizi-Ouzou (Algeria).

IV. Place of recruitment

Recruitment was made for the retrospective and prospective study on the data collected from the database and the interrogation of the family of suicidal persons sent on request of the public prosecutor's office for forensic autopsy at Tizi-Ouzou CHU forensic medicine service.

We also consulted suicide data in the various forensic services in the territory of the Wilaya of Tizi-Ouzou, exclusively to establish the incidence of suicide in the whole of the Wilaya of Tizi-Ouzou.

V. Choice of Target population Inclusion criteria

The study population includes all of the people residing in the territory of the province of Tizi-Ouzou (Algeria), autopsied at the forensic medicine service of the University Hospital of Tizi-Ouzou who concluded that they committed suicide during for the years 2015, 2016, 2017 and 2018.

Exclusion criteria

Are excluded from our study:

- Cases of death or autopsy that have not resulted in suicide.
- Cases of autopsy of violent death, the origin of which is doubtful between suicide and the accident.
- Cases of autopsy of suicidal death in which the victim does not reside in the territory of the province of Tizi-Ouzou (Algeria).

VI. The Results :

6.1 Suicide rate in our thanatological activity.

It should be noted as shown in Table 01 that more than (24.4%) of the autopsies of the forensic medicine service at Tizi-Ouzou teaching hospital were suicides.

Table 1:

		autopsy	suicide numbers	% of suicide
years	2015	254	47	18,5
	2016	239	51	21,3
	2017	227	59	26
	2018	199	67	33,7
	Total	919	224	24,4

6.2 The distribution of the suicide rate by gender:

The gender distribution shows a greater male representation with 82.6% (185 men) for a relative frequency of the female sex of 17.4% (39 women).

The sex ratio is $185/39 = 4.74$

6.3 The incidence of suicide in the province of Tizi-Ouzou:

The average incidence of suicide is 05/100000 inhabitants per year.

The average incidence of suicide for men is 8.1 / 100,000 people.

The average incidence of suicide for women is 1.9 / 100,000 people.

6.4 The Distribution of Suicide by Age:

Almost half (43.8%) of suicide victims were under the age of 34. For the lowest rates are recorded in the extreme ages, namely 1.8% for those under 15 years and 0.4% for those over 85 years.

The average age of suicides of all sexes was 39.4 years, with extremes of 10 and 88 years. The average age of suicide for men was 40 years. The average age of suicide for women was 36.7 years.

For the distribution by age groups according to sex, the results are presented in table 02.

Table 02:

Age	gender				Total	
	men		women		N	%
	N	%	N	%		
<15	3	1,6	1	2,6	4	1,8
15-24	15	8,1	7	17,9	22	9,8
25-34	61	33,0	11	28,2	72	32,1
35-44	48	25,9	11	28,2	59	26,3
45-54	30	16,2	5	12,8	35	15,6
55-64	12	6,5	1	2,6	13	5,8
65-74	8	4,3	2	5,1	10	4,5
75-84	7	3,8	1	2,6	8	3,6
≥85	1	0,5	0	0,0	1	0,5
Total	185	100%	39	100	224	100

6.5 Distribution of suicide according to the Daira of residence

The most affected daïras are:

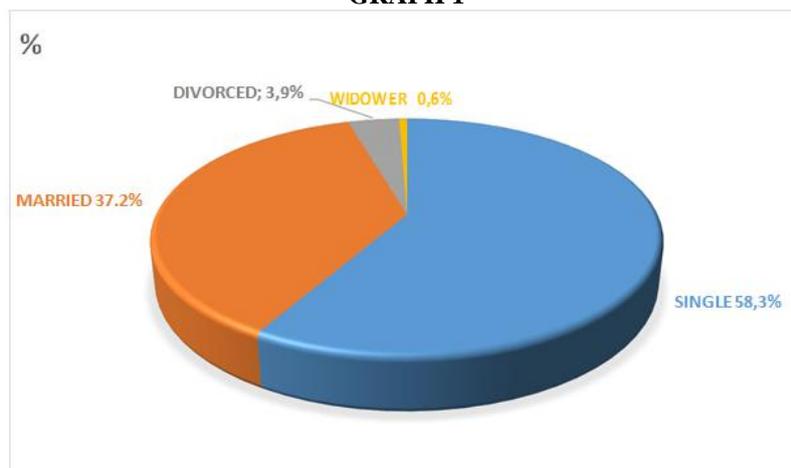
1. Tizirt: 9.25 Suicides per 100,000 inhabitants.
2. Makouda: 08 Suicides per 100,000 inhabitants.
3. Ouagnoune: 7.5 Suicides per 100,000 inhabitants.
4. Ain-El-Hammam: 7.25 Suicides per 100,000 inhabitants.
5. Larbaâ Nath Irathen: 7.25 Suicides per 100,000 inhabitants.

The most affected commune is the commune of Ouagnoune with 23.25 Suicides per 100,000 inhabitants.

6.6 The distribution of suicide according to marital status:

We found an over-representation of celibacy of both sexes in our sample: (58.3%) of suicide patients are single, while (37.2%) are married. Conversely, the terms relating to the "divorced" and "widowed" status are underrepresented with (3.9%) and (0.6%) respectively.

GRAPH 1



6.7 Distribution of suicides according to education level:

The average level of education represents the dominant modality of (41.4%) of suicide patients. A rate of (17.2%) of the suicide patients in our sample had no level of education. On the other hand, the university level represents the modality with the lowest enrollment with the secondary level at (8.6%) of suicides for each class.

6.8 Distribution of suicides according to profession:

We note that a large part (37%) of suicidal people are without a job, then the second place goes to day laborers (18.6%), then the craftsmen (11.3%). Civil servants and retirees share 4th place with (10.4%). Students and co-merchants are the professions that commit suicide the least with a rate of (6.3%) and (5.4%) respectively.

6.9 Distribution of suicides according to socio-economic level:

The middle class of the population of Tizi-Ouzou Wilaya is the most affected by this suicidal phenomenon with a rate of (52.9%). The population with a good socio-economic level is the least affected by suicide with the lowest rate at (10.5%).

6.10 Distribution of suicide according to the means used for suicide:

It is summarized in the following table:

Table3:

suicide mode	Gender				Total	
	men		women		N	%
	N	%	N	%		
Hanging	140	75,7	26	66,7	166	74,1
drowning	3	1,6	5	12,8	8	3,6
Poisoning and ingestion of caustic	11	5,9	4	10,3	15	6,7
firearm	7	3,8	0	0,0	7	3,1
White weapon injuries	1	0,5	0	0,0	1	0,4
Défenestration	18	9,7	3	7,7	21	9,4
Immolation	4	2,2	1	2,6	5	2,2
Hara-kiri	1	0,5	0	0,0	1	0,4
Total	185	100	39	100	224	100

6.11. Distribution of suicide according to personal history:

More than a third (37.7%) of the cases presented at least a suicidal history in the people having completed a suicide against (62.3%) are first-time suicidal.

Among the 98 cases out of 177 cases studied, (44.6%) report the presence of psychiatric disorders, of which a little more than half of these subjects (57.3%) have committed suicide despite treatment psychiatric treatment and putting the patient on treatment at the material time.

6.12. Distribution of suicide according to months and days:

The months most affected by suicide are respectively March and August at equal rate

(10.7%), January and July at equal rate (09.8%), May and November at equal rate (09.4%).

The month of February is clearly the least affected; there are only twelve cases of suicide (05.4%), or half as many cases as in March and August. The periods least affected then are December, September, June, April and October where the rate is between (05.8% to 7.6%).

The day with the most suicide is Sunday (38 cases), then Friday with (37 cases). The day least affected by this phenomenon is Tuesday, with only (25 cases).

VII. Discussion and analysis of data:

Our study was retrospective and prospective; it took place on a specific geographical area of Algeria in the Wilaya of Tizi-Ouzou. The number of subjects was significant at 224 cases of suicide, which corresponds to the activity of the forensic science service at CHU de Tizi-Ouzou over a period of 04 years.

Suicide is globally responsible for 05 people per 100,000 inhabitants in the province of Tizi Ouzou (Algeria), it is a fairly high rate in Algeria, that is 56 deaths by suicide per year just for the province of Tizi-Ouzou. Nationally, the incidence of suicide is not officially available because statistics are difficult to obtain, and the number of suicides in our country can not therefore be precisely identified.

Internationally, in our study, the incidence is higher compared to our neighbors, which is (2.9 / 100,000 inhabitants) for Tunisia, and (3.29 / 100,000 inhabitants) for Morocco.

In our series, the average age of suicide is 39.4 years. We observe that the lowest rates are recorded in the extreme age at 0.4% for those over 85 years.

It goes without saying that suicide remains strongly correlated with the ages of the young subject, which seems to be confirmed by the statistics of the various national and international studies whatever the method of work or the size of the sample. However, the elderly in developed countries are not relatively spared from suicide, as are those in our country. Would the improvement in the quality of life and the warm family life among the elderly population of our country be behind this contrast in figures?

In our study, the suicide population is made up of a majority of men, in a sex ratio (man / woman) of 4.74. It is compatible with international data summarized by World Health Organization (WHO) report in 2015.

In our study, it appears that marriage is a protective factor in suicide. It should also be noted that (11.1%) of women who have committed suicide are divorced, which shows the implication of divorce among women in the process of committing suicide.

37% of suicides were unemployed, constituting a risk factor as has been reported by other studies.

Hanging is the most common means of killing both sexes. Almost two out of three cases refer to this means. We find the same trend in our literature review. It should be noted the emergence of a recent and particular mode of suicide which is the immolation to consider an effective mode of protest and social claim of which we recorded five cases with a representation of (2.2%).

Many suicidal risk factors were identified in our study such as male, age, celibacy, socioeconomic level. In addition to these factors, there is a personal history of suicide, almost a third (37.7%) of whom have had at least one suicidal history in life and a medical history of psychiatric illness in (44.6%) of the cases.

During the week, Sunday (first day of the week) comes first, then second on Friday, which is sacred religious day.

VIII. Conclusion

To conclude, we can say that suicide is a public health problem, a multifactorial phenomenon that results from the interaction between a large number of factors. These interactions make the problem complex and difficult to study, but not impossible. Suicide prevention is a national priority in many countries, but more needs to be done in terms of evaluation.

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