

Suicide Rate in a Mediterranean Island: North Cyprus

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Abstract

Objective: This study determines the distribution of suicides according to years and seasons as well as the frequency of completed suicides in Turkish Republic of Northern Cyprus.

Method: All suicides that resulted in death in the Turkish Republic of Northern Cyprus (TRNC) between the years of 2010-2013 were included in the study.

Results: Fifty-six individuals committed suicide between 2010 and 2013. Male/female ratio was estimated to be 2.5. The mean rate of suicides per 100000 individuals for all 4 years was, 4.89. In males, the rate of violent suicide attempts was 82.5% (n: 33/40), while this rate was 56.2% (n: 9/16) in females.

Conclusions: The data from the current study suggest that the rate of suicide in North Cyprus Turkish Republic is higher than the rate in most Muslim countries, which is lower than the general world average and close to the rates observed in Turkey and South Cyprus. The male/female ratio was closer to that found in Turkey, Iran and Japan. Finally, the method and seasonal characteristics were similar to previous reports in the literature.

Keywords: Suicide; Cyprus; Gender; Age; Season

Introduction

Suicide is a complex human behavior that has biological, psychological and sociological origins. It may appear as suicidal ideation, suicide attempt and suicide commitment. Suicide seen in a wide spectrum, ranging from normal individuals reacting to life conditions that cause strain to patients with severe mental disorders [1].

World Health Organization (WHO) divides suicide into two categories: suicide attempts and completed suicides. Suicide attempts are voluntary attempts to kill or harm oneself that do not result in death [2]. For each suicide attempt that results in death, at least 30 suicide attempts are encountered [3]. Kessler et al., lifetime prevalence rates of suicidal ideation, suicidal plans and suicide attempts are 13.5%, 3.9% and 4.6%, respectively [4]. The number of suicides in the world totaled 782,000 in 2008, according to the WHO estimate. Suicide accounted for 1.4% of total mortality and 15% of injury mortality [5]. While suicide attempts are more frequent in women, completed suicides are more frequent in men [6]. Of all suicides, 84% are seen in countries with low to intermediate income level; 49% of all suicides occur in China or India [7].

Suicide rates differ among populations ranging from 5 in 100000 and less to 25 in 100000 and more. While the rate of completed suicides per 100000 individuals is approximately 30 in countries such as Finland, Latvia and Russia [8] 25 in Japan [9]; 18.1 in Serbia [10]; and 9.7 in Australia [11], this ratio decreases below 6.5 in Latin American countries [8]. The rate of suicide is lower in countries with stronger religious beliefs. For example, in Thailand, where Buddhism is widespread, the rate is 5.7 in 100000, and in the Philippines, where Catholicism is common, the rate is 5 in 100000 [12].

While the rate of suicide in men is 3-4 times greater than women in Western Countries, in Asian countries, the suicide rates for men and women are more equal [13]. The ratio of suicide in men to suicide in women is highest in Puerto Rico (6.6), Slovakia (6.6) and Poland (6.4) and lowest in China (0.9), which is currently the only country where the rate is higher for females than for males [5].

Suicide methods are divided into two categories, those involving

violent methods (hanging, drowning, getting injured from firearms and jumping from height) and those involving nonviolent methods (drug poisoning) [14]. The most commonly used suicide methods are taking an overdose of drugs, poisoning, hanging and shooting oneself with firearms [9]. While men typically choose hanging or jumping from a height, women prefer drug overdose, poison or cutting the ankles [11].

Many risk factors for suicide have been defined. These risk factors are: age, gender, living in a rural/urban area, race, month of birth socioeconomic factors, marital status, interpersonal relationships and life events, medical and psychiatric disorders, history of suicide attempt, and environmental conditions, such as sunlight and temperature [15-23].

Two studies have been conducted regarding suicide in Cyprus. Yağlı et al. [24], investigated suicides between 1970 and 1990 in Northern Cyprus, and Zacharakis et al. [25], investigated suicide in Southern Cyprus between 1988 and 1999. As the study conducted in Northern Cyprus includes data from over 24 years ago and no study about the topic has been conducted since this time, it would be beneficial to evaluate completed suicides in Northern Cyprus in recent times to compare data with the more recent study performed in Southern Cyprus.

The hypothesis of the study was that in a country which has a mostly Muslim population and where the summer period is very long the suicide rates can be higher than other Muslim countries and can have a seasonality.

The aim of the present study is to investigate the suicide rate, the

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distribution of suicides according to years and seasons, and to evaluate these factors in comparison to the literature.

Method

This is a retrospective, descriptive study based on all available suicide records kept by the General Police Directorate of the Turkish Republic of Northern Cyprus. Since electronic records were initiated in 2010, the study covers the period of 2010-2013 where the data is reliable. All suicides that resulted in death in the Turkish Republic of Northern Cyprus (TRNC) between the years of 2010-2013 were included in the study. Data related to the registry of birth were obtained from the Civil Registry Office.

The approval of the ethical committee of the Near East University School of Medicine was taken before conducting the study. Ethics Committee conforms to the provisions of the Declaration of Helsinki (as revised in Edinburg 2000).

Descriptive statistics were calculated. All data are presented as frequencies, percentages, means and standard deviations. All descriptive statistics are provided throughout the text and summarized in tables. Statistical calculations were conducted using Microsoft Excel software.

Results

Fifty-six individuals committed suicide between 2010 and 2013. Forty of these individuals were males (71.4%) and 16 were females (28.6%), and the male/female ratio was 2.5. The mean age of all cases was 41.70 ± 17.12 ; the mean age was 42.75 ± 14.83 in males and 39.06 ± 22.20 in females. The age range of cases was 14-86, 19-75 in males and 14-86 in females.

The number of individuals who committed suicide is provided with respect to years in Table 1. The number of suicides between the years 2010-2013 was 17, 14, 17 and 8, respectively. The last official census conducted in TRNC was in 2011 and it was used in this study for determination of suicide rates. The rate of suicides per 100000 individuals was 5.94 in 2010, 4.89 in 2011, 5.94 in 2012 and 2.79 in 2013, and the mean of all 4 years was 4.89.

The methods of suicide were summarized in Table 2.

In males, the rate of violent suicide attempts was 82.5% (n: 33/40), while this rate was 56.2% (n: 9/16) in females. The most commonly used methods was hanging in males (16; 40%), and taking drugs for females (7; 43.8%).

The distribution of suicides according to seasons is provided in Table 3.

The season when the rate of suicide was highest was summer, and the season when it was lowest was spring.

Discussion

The rates of suicide in our study were higher when we compared our data with that of the previous studies conducted in Southern Cyprus and TRNC [24]. According to World Health Organization data of 2008, the frequency of suicide in Cyprus was 4.5 per 100000 individuals. These data of the World Health Organization are thought to belonging to Southern Cyprus. It is generally reported in the literature that suicide rates are lower in Muslim countries [25,26]. Our findings note similar suicide rates when compared with 2008 data from the Christian population in Cyprus, although it was mildly higher (4.5/4.89). Cyprus Island hosted different cultures for centuries and was a British Colony

for 80 years (1878-1959). In Cyprus, which has been divided into North and South Cyprus, constituting Turkish and Greek regions since 1974, the borders were opened in 2003 for the first time. Although the Muslim and Christian communities live on the same island, they have been ruled differently and they have had different economies. Thus, many factors other than religion may have an impact on rates of suicide in North and South Cyprus.

In Latin American and Muslim Middle Eastern countries, the rates of suicide have been found to be less than 6.5 per 100000 [8]. In countries such as Finland, Latvia, Russia, Sri Lanka and South Korea, the suicide rates have been reported to be over 30 in 100000 [5,8]. In the United States of America, the suicide rate is reported to be 14 in 100000 [27]. The suicide rates that we found in this study are slightly higher than those found in some countries, but the rates are similar to data obtained from studies conducted in Turkey and South Cyprus. In the study conducted in Turkey, suicide rates were reported to be 3.96 in 2007 and 4.26 in 2012 [28]. The global rate of suicide reported by the World Health Organization is 11.6 in 100000 and our rates are lower also than this [29,30].

According to World Health Organization data on completed suicides, the male-to-female ratio is 4 in the European region, 3.6 in the American region, 1.1 in the East Mediterranean region, and 1.3 in the Western Pacific region [5].

The male-to-female ratios reported in some other countries are: 6

YEAR	(n)	%
2010	17	30.4
2011	14	25
2012	17	30.4
2013	8	14.3
Total	56	100

Table 1: The Number of Individuals who Committed Suicide with Respect to Years.

METHOD	MALE n (%)	FEMALE n (%)	TOPLAM n (%)
Hanging	16 (40.0)	4 (25.0)	20 (35.7)
Taking Drugs	7 (17.5)	7 (43.8)	14 (25.0)
Firearms	12 (30.0)	0 (0.0)	12 (21.4)
Jumping From A Height	2 (5.0)	2 (12.5)	4 (7.1)
Self-Stubbing	2 (5.0)	0 (0.0)	2 (3.6)
Drowning In The Sea	0 (0.0)	2 (12.5)	2 (3.6)
Crashing Into The Wall With A Motor Vehicle	1 (2.5)	0 (0.0)	1 (1.8)
Burning Oneself	0 (0.0)	1 (6.3)	1 (1.8)

Table 2: Suicide Methods.

MONTHS	NUMBER	PERCENTAGE	SEASON	NUMBER	PERCENTAGE
December	4	7.1	Winter	18	32
January	6	10.7			
February	8	14.3			
March	4	7.1	Spring	17	30
April	6	10.7			
May	7	12.5			
June	9	16.1	Summer	16	29
July	3	9.4			
August	4	7.1			
September	2	3.6	Autumn	5	9
October	1	1.8			
November	2	3.6			

Table 3: The Distribution of Suicides by Months and Seasons.

in Greece [5]; 4.7 in Israel [5]; 4.4 in South Cyprus [5]; 2.3 in Turkey [31]; 2.4 in Iran [29] 2.7 in Japan [9]; and 1.8 in Pakistan. It is worth noting that the male-to-female ratios are lower in Asian countries.

In North Cyprus, suicide rates per 100000 individuals were 6.65 in men and 2.95 in women. The male-to-female ratio was 2.5 when taken numerically. The corrected ratio, taking the number of women and men in the population into account, was 2.25. When these rates are compared with the literature, they are similar to data from Turkey, Iran and Japan.

Suicide methods were further classified as involving violent (hanging, drowning, shooting and jumping) or nonviolent (poisoning) methods [14].

Males are more likely than females to die by all forms of violent death, including suicide [30].

While the most commonly used method of suicide in United States of America is the use of firearms [31], in countries such as China and Korea, where there are large rural populations, pesticides are reported as the most widespread method [32]. In Australia, Japan, New Zealand, Pakistan, Thailand and India, the most common method is hanging, and in Hong Kong and Singapore, jumping from a height was reported to be the most frequent method [32,33].

In a study that investigated the relationship between suicide methods and gender, age and education in Iran, the most common method was hanging in men and burning oneself in women. Hanging and burning oneself was more common in individuals with lower education levels, and drug poisoning was more common in individuals with higher education levels [34]. In South Cyprus, the most common suicide methods in women were jumping from a height, drug poisoning and hanging [25]. In our study, women preferred drug poisoning, which is the most common nonviolent method. In Turkey, Brazil, Argentina, Thailand, Austria and Germany, the most widespread suicide method is hanging [28,35]. As in our country, in many countries such as Turkey, Canada, America, Austria, Hungary, Denmark, Holland and Norway, women mostly prefer the method of using chemicals [28,35].

The literature suggests that the rate of completed suicides increases with age. One fourth of all suicides in the USA and one third of all suicides in Holland have been reported to be performed by individuals 60 years of age or older [1]. The World Health Organization report in 2000 has shown that in the East Mediterranean region, the rate of suicides peaked between ages 15 to 29 in women and over 60 for men [36]. However, in our study, the mean age was found to be 39-42 in both women and men, which is different from the literature. Similar data were found in a study conducted in Ireland investigating suicide data of 22 years where the highest suicide rates were found among individuals between 40 and 44 years of age [37].

In accordance with studies conducted in many different countries up to the present, in our study, the seasons in which suicide attempts were observed most often were summer and spring. July and March were the months where suicides were seen most often, and October, November and December were the months where suicides were seen least. In a study conducted in Austria, the highest suicide rates were seen between March and May, while the lowest rates were seen in November. Sunlight was specifically related to violent suicides. The argument that sunlight increases impulsivity by acting on serotonin transmission and thus increases suicidal acts has been suggested [38]. In a study that investigated suicide attempts and completed suicides across 20 years

in Italy, suicide attempts were prominently related to sunlight exposure and inversely related to the amount of rainfall [20].

Our study has some limitations. The first limitation of the study is that the study was a retrospective study which was restricted with 4 years since the police files were acceptable only for that period. Another limitation was that the files were including information only about age, gender, date of suicide and suicide method.

Conclusion

The data from the current study suggest that the rate of suicide in North Cyprus Turkish Republic is higher than the rate in most Muslim countries, which is lower than the general world average and close to the rates observed in Turkey and South Cyprus. The male/female ratio was closer to that found in Turkey, Iran and Japan. Finally, the method and seasonal characteristics were similar to previous reports in the literature.

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