

Consummated Suicides among Barcelona's (Spain) Residents According to the Territorial Distribution of Family Income and Population Density (2012-2014)

Mercè Subirana-Domènech*, Helena Martínez-Alcázar and Yobanka Toledo-Gallego

Centre de Patologia Forense, Ciutat de la Justícia, Edifici G, 5^a planta, Gran Via 111, 08075 Barcelona, Spain

*Corresponding author: Mercè Subirana Domènech, Centre de Patologia Forense, Ciutat de la Justícia, Edifici G, 5^a planta, Gran Via 111, 08075 Barcelona, Spain; E-mail: 25402msd@comb.cat

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Abstract

Introduction: The aim of this study is to present an overview of socio-economic inequalities in suicide mortality among neighbourhoods in Barcelona according to territorial distribution of family income and population density during the period ranging from 2012 to 2014.

Material and methods: 278 accomplished suicides were related to territorial distribution of family income and population density during the period ranging from 2012 to 2014. The rate of the territorial distribution of family income was less than 100 in the poorest neighbourhoods and more than 100 in wealthier neighbourhoods and the population average was 22.417 inhabitants according to our Council data.

Results: In the poorest neighbourhoods 169 suicides occurred (60.79%) and in the richest neighbourhoods 109 (39.21%) ($p < 0.03$). According to neighbourhoods with lower than average population density, the number of suicides were 65, (23.38 %) higher than the average population density 213, (76.61%) ($p < 0.001$). The coefficient correlation was 0.16 (highly correlated).

Conclusion: According to previous research, resources for suicide prevention should be targeted to high poverty/deprivation areas, incorporating socio-economic disadvantage in prevention policy.

Keywords: Socioeconomic factor; Neighbourhood; Suicide risk; Mortality

Introduction

There has been debate over the relationship between the 2008 economic crisis, the rise of unemployment, and suicide occurrence [1]. It has been hypothesized that economic crisis has been responsible for an increase in suicides. However, there is little available information on suicide related to the territorial distribution of family income (TDFI) and population density in the city of Barcelona (Spain). The aim of this study is to present an overview of socio-economic inequalities in suicide mortality in Barcelona among neighbourhoods according to territorial distribution of family income and population density during the period from 2012 to 2014.

Subjects and Method

The present study uses data collected from 344 autopsies of accomplished suicides performed in the Forensic Pathology Service of Ciutat de la Justícia from 2012 to 2014. 66 of the 344 cases in which the district of residence was unknown or were not Barcelona city residents were excluded. The number of suicides analyzed was consequently, only 278.

These suicides were related to age, sex, suicide mechanism, neighbourhood of the deceased and also to the rate of distribution of family income and average population density. The rate of the territorial distribution of family income was less than 100 in the

poorest neighbourhoods and more than 100 in wealthier neighbourhoods and the population average was 22.417 inhabitants according to our Council data [2].

Results

The sample (278 cases) consisted of 189 men and 89 women (ratio 2.12). The mean age was 55.4 years and standard deviation 19.9 years (Table 1). The most frequent mechanisms were falling from height ($N=119$, 42.80%) and mechanical asphyxia by hanging ($N=75$, 26.98%).

Gathered neighbourhoods according to TDFI less than or more than 100: 169 (60.79%) suicides occurred in the most disfavoured districts with less than 100 TDFI and the remaining $N=109$ (39.21%) in the neighbourhoods of TDFI more than

100 ($p < 0.03$). In neighbourhoods with lower than average population density, the number of suicides were $N=65$, 23.38% and which were higher than the average population density $N=213$, (76.61%) ($p < 0.001$) (Table. 2). The correlation coefficient between the suicides in the poorest and the most densely populated neighbourhoods (Pearson's r) was 0.163 (highly correlated).

Age	Suicides (n=278), (%)	Male (n=189), (67.98%)	Women (n=89), (32.01%)	Ratio
0-15	1	0 (0)	1 (0.37)	(0)
16-30	31(11.65)	17 (6.39)	14 (5.26)	(1.21)
31-45	57(21.42)	46 (17.29)	11 (4.13)	(4.18)
46-60	81(30.45)	60 (22.55)	21 (7.89)	(2.85)
61-75	41(15.41)	22 (8.20)	19 (7.14)	(1.15)
76-90	49 (18.42)	31 (11.65)	18 (6.76)	(1.72)
90	6 (2.25)	3 (1.12)	3 (1.12)	(1.00)
Unknown age	12	10	2	

Table 1: Number of consummated suicides with performed autopsy at Centre de Patologia Forense (Barcelona, Spain) according to age and sex (2012-2014).

District	Suicides by district (%)	Suicides in the neighbourhoods of the district according to RFID		Suicides in the neighbourhoods of the district according to population density	
		<100	>100	<22.417 hab	>22.417 hab
1	23 (8.27)	21	2	5	18
2	58 (20.86)	13	45	1	57
3	33 (11.87)	33	---	10	23
4	18 (6.47)	---	18	3	15
5	20 (7.19)	---	20	3	17
6	22 (7.91)	1	21	7	15
7	18 (6.47)	17	1	5	13
8	28 (10.07)	28	---	16	12
9	18 (6.47)	18	---	8	10
10	40(14.38)	38	2	7	33
Total	278 (100)	169 (60.79%)	109 (39.21%) (p<0.03)	65 (23.38%)	213 (76.61%) (p<0.001)

Table 2: Accomplished suicide with performed autopsy in the Centre of Pathology de Ciutat de la Justice of Barcelona (2012-2014) according

to index income family (RFID) and density of population (Barcelona City Council data).

Discussion

First of all we must admit that the present study is under-powered to investigate the full range of potential confounding factors because we had not access to the medical records of the deceased. What's more we could not take into account if there was an increase in suicides related with home eviction and foreclosure during the Spain housing crisis or unemployment like other authors reported [3,4]. Furthermore, we cannot elude that excluding 66 of the 344 suicides in which the district of residence was unknown or were not Barcelona city residents is of critical importance, since it decreases the number of suicides consistently. On the other hand this study has some strong points as it includes a large number of cases of suicides. It is also the first study related to socioeconomic factors and consummated suicides in our city.

Conclusion

The highest number of suicide deaths occurs in the poorest neighbourhoods with TDFI less than 100 as well as in those having a population density higher than average but more research is needed.

According to previous research, resources for suicide prevention should be targeted to high poverty/deprivation areas, incorporating socio-economic disadvantage [5,6].

References

1. Warnke I, Seifritz E, Kawohl W (2015) Modelling suicide and unemployment: a longitudinal analysis covering 63 countries, 2000-11. *Lancet Psychiatry* 2: 239-245.
2. http://opendata.bcn.cat/opendata/ca/catalog/SOCIETAT_I_BENESTAR#
3. Houle JN, Light MT (2014) The home foreclosure crisis and rising suicide rates, 2005 to 2010. *Am J Public Health* 104: 1073-1079.
4. Zhang Y, Yip PS, Chang SS, Wong PW, Law FY (2015) Association between Changes in Risk Factor Status and Suicidal Ideation Incidence and Recovery. *Crisis* 36: 390-398.
5. Rehkopf DH, Buka SL (2006) The association between suicide and the socio-economic characteristics of geographical areas: a systematic review. *Psychol Med* 36: 145-157.
6. Page A, Morrell S, Hobbs C, Carter G, Dudley M, et al. (2014) Suicide in young adults: psychiatric and socio-economic factors from a case-control study. *Psychiatry* 14: 68.