

# Effect of the Irish Civil War 1922-1923 on suicide rates in Ireland: a retrospective investigation of the archives of the registrar-general for Saorstát Éireann

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## ABSTRACT

**Introduction:** Emile Durkheim differentiated between two types of wars: National and Civil Wars in terms of effect on suicide mortality. This study investigates Durkheim's assertion by examining the effect of Irish Civil War on the 1882-1928 suicide rates trend.

**Method:** The study is based on vital statistics data sourced from Central Statistics Office of Ireland. We used Auto-Regressive Integrated Moving Average with Explanatory variables (ARIMAX) design adopting Bayesian approach.

**Results:** The Standardized Mortality Rate SMR for death by suicide for the total Irish population during the civil war period were reduced by 0.041417 (95% Credible Interval CI: -0.2421749 to 0.15934012). The SMR for death by suicide for the total Irish population during the First World War period were reduced by 0.206202 (95% CI: -0.3776463 to -0.03475746).

**Conclusion:** Evidence from this study support a significant drop in terms of the intensity of suicidal behaviour in the Irish population during World War I more so than during the Irish Civil War.

*Key words:* suicide, Ireland, Irish Civil war, World War 1, Durkheim's theory

## INTRODUCTION

During the 28 June 1922 – 24 May 1923 period, fierce fighting took place between the pro and the anti-

Anglo-Irish Treaty forces. The estimated casualties were about 1500 killed and several thousand injured [1].

Emile Durkheim, as part of his historical investigation of the effect of war on suicidal rates, pointed out the

difference between two types of wars: National and Civil Wars. A National War that constitutes a territorial threat and stimulates nationalistic feelings amongst people, thereby a reduction in suicide rates will occur. Such group dynamics will not operate in a Civil War that doesn't involve an external threat, and consequently, no reduction in suicide rates is expected [2]. We investigate Durkheim's assertion by examining the Irish Civil War in terms of its effect on suicide rates.

## METHOD

Data pertaining to the suicide counts and rates between 1882 and 1928 were obtained from the Archive section of the Vital Statistics available publicly online at the website of the Central Statistics Office of the Republic of Ireland. Annual Reports of Marriages, Births and Deaths from 1864 to 2000 inclusive are available with the 1928 report containing data on the Irish suicide deaths both in terms of crude deaths and rates per 100,000 of the population [3]. We modelled the natural logarithms of the odds of suicide rates per 100,000 for the years 1882-1928, using Auto-Regressive Integrated Moving Average with Explanatory variables (ARIMAX) procedure adopting Bayesian approach [4]. We, then, estimated the coefficient for an indicator variable for the effect of civil war non-zero only for the years 1922-1923 and for the effect of WW1 by another indicator variable with the value one for the years 1914-1918.

Both coefficients were estimated with a hierarchical Bayesian model assumed a normal distribution with mean zero and a large variance of 100 for the observed effect of WW1 and Civil War on suicide. All estimates were derived with R3.1.2 [5] and 'rjags' Bayesian Statistical package by using MCMC (Markov chain Monte Carlo) simulations with 50,000 iterations using every 5th iteration only and three chains to validate the results [6].

## RESULTS

An up and down trend was present in terms of the suicide deaths in Ireland between 1882 and 1928 (see Figure 1). The average suicide deaths for this period were 89 suicides per year. In the year 1922 there were 65 deaths per suicide, whereas the figure for 1923 was 74, both clearly below the average. The average annual deaths by suicide were 89 pre-wartime, 70 during the wartime, and 95 post-wartime.

The year 1895 witnessed the record crude suicide deaths of 119 (equivalent to the rate of 3.6 suicides per 100,000 of the population). On the other hand, the year 1912 witnessed the highest suicide rate of 3.7 suicides per 100,000 of the population (with recorded crude 116 suicide deaths that year). The Suicide SMR during the

WW1 period was 0.863, compared to 1.067 before the WW1 and 0.807 afterwards (See table. 1).

**TABLE 1. Average SMR and Suicide Death Rates across the pre-war, war, and post-war periods for Irish Civil War and WW1**

Period	Average SMR	Average Death Rate/100000
Pre-Civil War	1.031	2.648
Civil War	0.609	2.35
Post-Civil War	0.817	3.2
Pre-WW1	1.067	2.725
WW1	0.863	2.3
Post-WW1	0.807	2.79

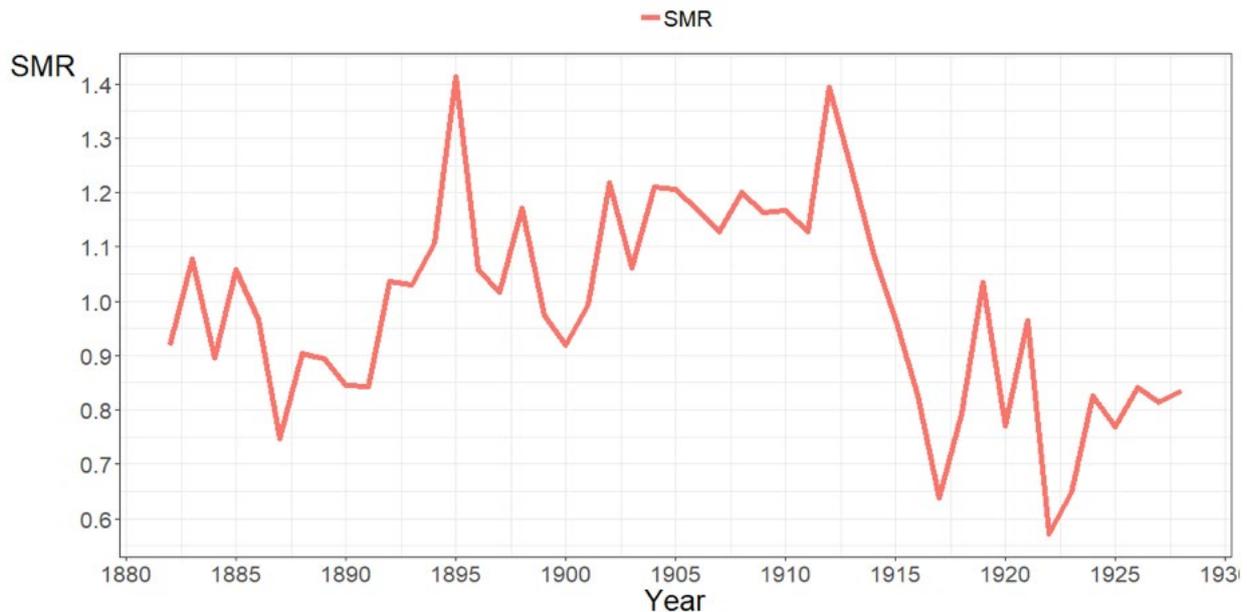
Upon investigating the effect of civil war on the overall suicide rate, the coefficient in the ARIMAX model was -0.041417 (95% Credible Interval CI from -0.2421749 to 0.15934012). This translates to a posterior probability of 0.314 that the suicide rate decreased during the civil war. Notably, p-values are not calculated as part of the Bayesian approach. This is because they are highly dependent on sample size and, thus, are unlikely to find spuriously significant values in a restricted size data sets. The Civil War was, thankfully, of a short duration, and its effect on suicide deaths would be very difficult to pick by p value calculations.

Similarly, for the effect of WW1 on the suicide rates on the people living in the twenty-six Irish counties, the coefficient was -0.206202 (95% CI from -0.3776463 to -0.03475746) which gives a posterior probability of suicide reduction of 0.982.

## DISCUSSION

Complexities of suicidal behaviour become more ostensible at the time of Civil War. This is noticeable from the conflicting results of previous studies. Suicide rates in the US civil war were argued to be much lower than during the post-wartime for the military forces [7,8] and the general American populations alike [9]. However, a slightly different picture emerged during the civil war in Serbia and Montenegro 1991-1994, as suicide deaths increased during the war period and decreases slightly afterwards [10]. One proposed plausible explanation for such rise in suicide deaths was the overextension of medical services [11]. A similar trend of increase in suicide rates during wartime with a drop post-wartime was captured in Croatia [12]. During the 1992-1995 Balkan war, the suicides in west-Herzegovina have dropped compared with periods before and after [13]. In a single country like Sri Lanka, multiple studies came up with conflicting results. A study that was carried out in a province with remarkable exposure to intense fighting

**FIGURE 1. The 1864-2013 annula Standardized Mortality Rate of suicide deaths in Ireland**



during the Sri Lankan civil war found a reduction in suicide rates [14], whilst another wider-scaled study didn't [15]. A recent Sri Lankan study focused on the last two years of the civil war, found a significant 8% reduction of suicide deaths specifically amongst men [16]. Our study points towards reduction of suicide rates during the Irish Civil War. This is in line with what a number of similar studies have found, but not in contradiction with the Durkheim's distinction between civil and national wars as the effect size of this reduction was not statistically significant. A possible explanation could be the short period of the Irish Civil War in comparison with other countries' experiences. Further research could be directed towards examination of the initial stages of civil wars in comparison with the later stages in terms of effects on suicidal mortality.

A number of limitations to this study have to be taken into consideration. Suicide deaths are stigmatized, difficult to ascertain, and easily overlooked during wartime. Moreover, as the Irish State has just recently got independent, the statistical services may not have performed optimally. Having this stated, to our knowledge, this is the first research to explicitly assess the effect of the Civil War on the Irish suicide rates.

## CONCLUSION

Irish rates of suicide have been reduced during the time of Civil War and the WWI. We can conclude that the evidence supports a significant drop in terms of the intensity of suicidal behaviour in the Irish population during World War I more so than during the Irish Civil War. This drop does not contradict with Durkheim's social integration

theory in terms of the differential effects of National and Civil wars on suicide deaths. However, further research is needed to investigate the mechanisms underlying such reduction in suicide mortality during civil wars.

## Conflict of interest

Authors declare that there are no conflicts of interest.

## Statement of informed consent

The study used publicly available data. We judged that an informed consent or ethical approval is not required.

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