Effect of the First World War on suicide rates in Ireland: an investigation of the 1864–1921 suicide trends
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Summary
Since the proposition of the social integration theory by Émile Durkheim, macro-sociological changes have been speculated to affect suicide rates. This study investigates the effect of the First World War on Irish suicide rates. We applied an interrupted time series design of 1864–1921 annual Irish suicide rates. The 1864–1913 suicide rates exhibited a slow-rising trend with a sharp decline from the year 1914 onwards. The effect of First World War non-zero only for the years 1914–1918 period was 0.811 (95% CI 0.768–0.963). Irish rates of suicide were significantly reduced during the First World War, most notably for males.

Declaration of interest
None.

Method
Suicide data in Ireland between 1864 and 1921 were gathered from the archive section of the Central Statistics Office’s website.11 We chose this range to focus the attention analysis on the effect of the First World War. We adopted an interrupted time series design. We model the natural logarithm of suicide rates per 100 000 for the years 1864–1921 using autoregressive integrated moving average with explanatory variable (ARIMAX) approach, that was successfully used before in a number of medical and non-medical studies.12–14 We then calculated the coefficient for an indicator variable for the effect of First World War non-zero only for the years 1914–1918 and zero otherwise. Statistical analysis was performed using the R statistical package version 3.1.2. (http://beta.r-project.org).

Results
A noticeable slow-rising trend was present in terms of the suicide rates in Ireland from 1864 to the year 1913. The average suicide rate for this period was 2.49 per 100 000. However, a sharp decline was noted from the year 1914 onwards, with an average of 2.64 suicides per 100 000 (Fig. 1). This trend was clear even when the suicide rates were calculated for men and women separately.

The year 1866 witnessed the lowest overall suicide rate of 3.763 suicides per 100 000 of the population and the highest suicide rate for men at 5.938 per 100 000, whereas the year 1910 witnessed the highest female suicide rate of 1.957 suicides per 100 000 of the population.

On investigating the effect of First World War on the overall suicide rate, the coefficient in the interrupted ARIMA model was −0.172 (95% CI −0.305 to −0.040) which was statistically significant (P=0.011). The odds for death by suicide for the total Irish population during the 1914–1918 period were calculated as 0.842 (95% CI 0.787 to 0.901). This translates to a reduction in the suicide rates for men by 13.6% (95% CI 9.9 to 21.1). However, the coefficient for the effect of First World War on female suicide rate was −0.103 (95% CI −0.340 to 0.134) which was not statistically significant (P=0.394), although the confidence interval contains...
At the time of the First World War, Ireland was part of the British Empire, and Irish soldiers served in the British Army. Although the psychological consequences of this war on Irish soldiers and the Irish public were studied sparsely, these may be reasonably believed not to differ profoundly from their British and European counterparts. In his investigation of suicide rates between 1901 and 1965, Lester found that suicide rates were lower during wartime in Great Britain.\(^4\) However, this was not a large effect. In a study performed in the late 1940s, a sharp decrease in suicide rates in France, specifically in Paris, was noted during the First World War.\(^4\) The rates of French suicides, as Lunden established, continued to decrease even in the decade following the First World War. According to our findings, the Irish case has a number of similarities to findings by these researchers. The overall trend has taken a downward direction after the year 1914 as can be seen clearly in Fig. 1. However, applying more advanced statistical procedures, only the decrease in total suicide rate and male suicide rates can be supported by statistical evidence. Females’ suicide rate reduction during wartime was not different from peacetime. Divergence of male and female suicide rates was thought to be a more recent phenomenon.\(^15\) Indeed, our paper shows support for this as the trends were roughly similar between the two genders.

An important limitation to this investigation is the potential under-reporting of suicide deaths that may have been worsened by the difficulties faced by local registrars, whose knowledge, training and experience may vary considerably, during wartime. However, to our knowledge, this is the first study to specifically evaluate the effect of the First World War on Irish rates of suicide. Data were only available for the whole Irish population, i.e. the 32 counties, and it could have been more interesting to investigate the effect of the First World War on people living south and north of the borders separately.

Irish rates of suicide were reduced during the First World War most notably for males. This provides some further support to Durkheim’s social theory of suicide indicating that Irish men may have focused on the collective goal of defending their island rather than their suicidal wishes during the 1914–1918 war.
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Br J Psychiatry Open 2015, 1:164-165.
Access the most recent version at DOI: 10.1192/bjpo.bp.115.000539

References
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