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*Short Communications*

# Social Correlates of Suicide and Homicide in the Austro-Hungarian Empire in the 19th Century

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**Summary.** Evidence was found for the role of social integration in affecting suicide rates both in a time-series analysis and in a regional analysis for the Austro-Hungarian Empire in the nineteenth and early twentieth centuries. The social correlates of the homicide rates were, however, quite different from those of the suicide rates.

**Key words:** Suicide – Homicide – Nineteenth century

## Introduction

Durkheim [2] predicted that social variables would have an impact on suicide rates in societies because of the mediating effects of social integration and social regulation. Social behaviours such as divorce, which decrease the amount of social integration, should increase the suicide rate. Similarly, social behaviours such as non-conforming to the prevailing religious views, which decrease the amount of social regulation, should also increase the suicide rate.

Many studies of modern societies have confirmed these predictions. For example, Lester [5] has shown that states in the United States with higher rates of divorce and migration and lower rates of church attendance have higher suicide rates. Yang [6] has shown that divorce rates and female participation in the labour force are related to the suicide rate in the United States over time from 1940 to 1984. In a similar fashion, social variables have also been related to outwardly directed aggression, that is, homicide [5].

The present study sought to examine the influence of social variables on suicide and homicide, both in time-series analyses and regional analyses in the Austrian part of the Austro-Hungarian Empire in the late 1800s and early 1900s.

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## Method

Data were available for the period 1875 to 1913 for Austria for the following variables: marriage rate, live birth rate, illegitimate birth rate, infant mortality rate, and suicide and homicide rates. The data were obtained from the annual yearbooks of the Austrian monarchy and have been presented by Giorgio [3]. The rates used in this paper are shown in Table 1. The variables were subjected to a logarithmic transformation and to a time-series analysis using the Regression Analyses of Time Series program [1].

The same variables were also available for Austria and 11 regions governed by Austria. Data for 1890 for these 12 regions were subjected to a standard multiple regression analysis. The raw data for the regional study are shown in Table 2.

## Results

The results are shown in Table 3. For suicide, it can be seen that in the time-series analysis only the marriage rate was associated with the suicide rate: the higher the marriage rate, the lower the suicide rate. In contrast, in the time-series analysis, illegitimate births and infant mortality were associated with the homicide rate: the higher the illegitimate birth rate and the lower the infant mortality rate, the lower the homicide rate.

The regional analysis identified different correlates for suicide. Here the birth rate was associated with the suicide rate: the higher the birth rate, the lower the suicide rate. In contrast, the birth rate and the infant mortality rate were associated with the homicide rate: the lower the birth rate and the higher the infant mortality rate, the lower the homicide rate.

## Discussion

The results for both the time-series and the regional analyses of the suicide rate support Durkheim's theory. Marriage and children were assumed by Durkheim to increase social integration, and the association of these variables with the suicide rate was in the predicted direction. However, only the marriage rate contributed significantly to the multiple regression in the time-series

**Table 1.** Rates (per 100,000 per year) for the social variables for Austria, 1875–1913

| | Marriages | Births | Illegitimate births | Infant mortality | Suicide | Homicide |
|---|---|---|---|---|---|---|
| 1875 | 8.63 | 40.29 | 4.75 | 14.29 | 13.0 | 3.75 |
| 1876 | 8.35 | 40.44 | 4.95 | 14.72 | 15.8 | 3.23 |
| 1877 | 7.57 | 38.97 | 5.36 | 15.75 | 16.8 | 3.17 |
| 1878 | 7.65 | 38.81 | 5.41 | 15.73 | 16.1 | 3.10 |
| 1879 | 7.75 | 39.22 | 5.63 | 14.45 | 16.7 | 3.36 |
| 1880 | 7.61 | 37.66 | 5.51 | 14.32 | 16.6 | 2.89 |
| 1881 | 7.99 | 37.65 | 5.41 | 14.53 | 15.8 | 3.18 |
| 1882 | 8.21 | 39.13 | 5.64 | 15.40 | 15.8 | 3.07 |
| 1883 | 7.82 | 38.18 | 5.53 | 14.30 | 16.0 | 2.44 |
| 1884 | 7.89 | 38.68 | 5.67 | 14.28 | 16.7 | 3.00 |
| 1885 | 7.66 | 37.62 | 5.56 | 14.42 | 17.1 | 2.85 |
| 1886 | 7.81 | 37.97 | 5.59 | 14.21 | 16.7 | 2.89 |
| 1887 | 7.82 | 38.14 | 5.65 | 14.20 | 16.6 | 2.66 |
| 1888 | 7.91 | 37.82 | 5.58 | 14.13 | 15.8 | 2.70 |
| 1889 | 7.49 | 37.83 | 5.60 | 13.26 | 15.8 | 2.44 |
| 1890 | 7.47 | 36.23 | 5.43 | 14.17 | 15.7 | 2.58 |
| 1891 | 7.75 | 38.18 | 5.59 | 13.65 | 16.3 | 2.60 |
| 1892 | 7.77 | 36.03 | 5.38 | 13.69 | 16.0 | 2.83 |
| 1893 | 7.93 | 37.86 | 5.46 | 12.68 | 16.8 | 2.49 |
| 1894 | 7.95 | 36.90 | 5.43 | 13.71 | 16.4 | 2.62 |
| 1895 | 8.11 | 38.22 | 5.53 | 13.53 | 14.4 | 2.45 |
| 1896 | 7.99 | 38.18 | 5.63 | 12.72 | 15.2 | 2.16 |
| 1897 | 8.13 | 37.66 | 5.40 | 12.25 | 15.4 | 2.15 |
| 1898 | 7.88 | 36.43 | 5.18 | 11.78 | 16.1 | 2.29 |
| 1899 | 8.35 | 37.53 | 5.17 | 11.74 | 16.2 | 2.24 |
| 1900 | 8.29 | 37.45 | 5.06 | 11.80 | 16.2 | 2.17 |
| 1901 | 8.17 | 36.77 | 4.90 | 10.70 | 16.4 | 2.10 |
| 1902 | 7.83 | 37.27 | 4.90 | 11.50 | 17.2 | 2.04 |
| 1903 | 7.85 | 35.40 | 4.43 | 10.70 | 17.7 | 1.95 |
| 1904 | 7.82 | 35.74 | 4.53 | 10.50 | 16.8 | 2.17 |
| 1905 | 7.85 | 33.96 | 4.23 | 10.93 | 18.6 | 2.06 |
| 1906 | 7.94 | 35.20 | 4.30 | 9.86 | 17.4 | 2.18 |
| 1907 | 7.59 | 34.16 | 4.24 | 9.67 | 17.6 | 2.16 |
| 1908 | 7.67 | 33.83 | 4.15 | 9.36 | 17.6 | 1.96 |
| 1909 | 7.59 | 33.53 | 4.07 | 9.96 | 19.3 | 2.20 |
| 1910 | 7.59 | 32.63 | 3.95 | 8.69 | 19.2 | 2.30 |
| 1911 | 7.58 | 31.45 | 3.67 | 8.92 | 19.5 | 2.50 |
| 1912 | 7.35 | 31.28 | 3.70 | 7.80 | 20.1 | 2.40 |
| 1913 | 6.73 | 29.72 | 3.53 | 7.82 | 20.9 | 2.40 |

analysis, while only the birth rate contributed significantly to the multiple regression for the regional analysis. The reasons for this difference are far from clear.

The variables which made significant contributions to the multiple regression analyses for homicide were quite different from those contributing to the multiple regression for suicide. Thus, the theory of Henry and Short [4] that suicide and homicide are opposed behaviours which respond in opposite ways to the same social variables was not confirmed, except for the correlate of the birth rate in the regional analyses.

The four social variables explained a high percentage of the variation of the suicide rates (77% for the time-series analysis and 64% for the regional analysis). The percentages for homicide were not much smaller. Thus, the social variables were quite successful in accounting for the variation in the rates of personal violence.

**Table 2.** Rates (per 100,000 per year) for the social variables for the regions of the Austrian Empire, 1890

| | Marriages | Births | Illegitimate births | Infant mortality | Homicide | Suicide |
|---|---|---|---|---|---|---|
| Core Austria | 7.7 | 31.1 | 7.8 | 11.7 | 2.2 | 25.2 |
| Styria | 6.8 | 28.8 | 7.2 | 9.5 | 3.3 | 12.6 |
| Carinthia | 5.1 | 30.4 | 13.4 | 10.3 | 2.2 | 17.3 |
| Carniola | 6.2 | 34.1 | 2.7 | 11.6 | 5.0 | 5.6 |
| Littoral | 7.3 | 35.0 | 2.0 | 13.4 | 3.4 | 6.1 |
| Tirol & V | 5.8 | 27.6 | 1.5 | 8.1 | 2.7 | 9.0 |
| Bohemia | 7.3 | 35.2 | 4.7 | 13.8 | 1.8 | 22.6 |
| Moravia | 7.2 | 35.4 | 3.7 | 14.8 | 2.2 | 15.9 |
| Silesia | 7.9 | 37.7 | 3.9 | 14.5 | 1.2 | 18.7 |
| Galicia | 8.3 | 43.7 | 6.1 | 17.7 | 2.8 | 8.6 |
| Bukovina | 8.0 | 43.3 | 5.2 | 17.9 | 5.8 | 9.6 |
| Dalmatia | 8.2 | 36.9 | 1.3 | 10.6 | 7.0 | 5.9 |

**Table 3.** Results of the regression analyses for suicide and homicide

| | Time series | | Regional analysis | |
|---|---|---|---|---|
| | Coefficient | *(P)* | Coefficient | *(P)* |
| *Suicide* | | | | |
| Marriages | −0.76[a] | (0.01) | 4.35 | (0.11) |
| Births | −0.42 | (0.30) | −2.13[a] | (0.04) |
| Illegitimate births | −0.12 | (0.38) | 0.97 | (0.10) |
| Infant mortality | −0.05 | (0.67) | 2.34 | (0.11) |
| | 0.77 | | −0.64 | |
| *Homicide* | | | | |
| Marriages | −0.70 | (0.29) | −0.16 | (0.82) |
| Births | 0.26 | (0.77) | 0.62[a] | (0.03) |
| Illegitimate births | −1.24[a] | (0.0003) | −0.07 | (0.67) |
| Infant mortality | 1.37[a] | (0.00001) | −0.91[a] | (0.04) |
| $r^2$ | 0.67 | | 0.58 | |

[a] Significant at the 5% level or better

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