

## SHORT COMMUNICATION

Andreas Wiedenmann · Siegfried Weyerer

**Testing Durkheim's theory of suicide: additional results from Germany**

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**Abstract** In a recent study of 14 European countries, Lester (1993), using inference statistical techniques, confirmed Durkheim's (1897) observation that lower birth rates were associated with higher suicide rates in 1870 and 1980. Due to changes in national boundaries, Germany was excluded from these analyses. Among the federal states of Germany, Bavaria most suitably lends itself to a study of the relationship between suicide and familial integration over time. A long-term analysis of the years between 1865 and 1980 reveals a prominent reciprocal relationship ( $r = -0.87$ ;  $P < 0.001$ ) between rates of suicide and birth in Bavaria. Marriage rates, on the other hand, correlate only minimally ( $r = -0.19$  ns) with rates of suicide. Our results accord with Durkheim's view that unlike birth rates, higher marriage rates per se are only slightly associated with suicide rates.

**Key words** Suicide · Birth rate · Marriage · Bavaria (Germany)

**Introduction**

In the recently published study "Testing Durkheim's theory of suicide in nineteenth- and twentieth-century Europe", Lester (1993) attempts to replicate Durkheim's findings on the relationship between the frequency of suicide and familial integration using techniques of inference statistics.

Data from Germany were not included in this analysis, as 13 of the 25 federal states of the German Empire only began keeping public records of suicide statistics in 1881. However, since Durkheim used figures from single German states (mainly Bavaria, Saxony, and Prussia) to support his theories, it is important to enhance Lester's analy-

sis in this respect. Bavaria presents itself as the most suitable geographic unit for comparison with the countries studied by Lester, being the largest of the German *Länder* to survive as an independent administrative unit following World War II and also with regard to the size of its population (1980: 10.9 million inhabitants).

Lester primarily analyzed the correlation between rates of suicide and birth rates. Comparing data from 14 European countries, he arrived at correlation coefficients of  $r = -0.33$  for the mean of different years between 1865 and 1876 and  $r = -0.47$  (significant at the 5% level) for 1980.

For the years 1865–1876, we calculated a mean birth rate in Bavaria of 39.5 live births per 1,000 inhabitants and an average rate of suicide of 9.2 per 100,000 inhabitants. This corresponds to the standard value pair of  $z = 1.51$  and  $z = 0.08$  in relation to Lester's database. The birth rate for the year 1980 was 10.5 and the rate of suicide was 20.6. The corresponding standard values are  $z = -1.17$  and  $z = 0.54$ . Thus, a cross-sectional comparison for Bavaria confirms Lester's finding only for the year 1980, not for the earlier period of analysis. The temporal course also indicates a potential correlation between birth-rate figures and rates of suicide: a decrease in fertility between 1865–1876 and 1980 by almost 1:4 corresponds roughly to a doubling of the suicide frequency (Fig. 1).

In order to examine the last possibility more closely, we carried out a longitudinal correlational study. We analyzed the relationship between the annual values of both variables between 1865 and 1980 (Fig. 2). To control for the influence of another factor Durkheim considered relevant to rates of suicide, experiences of war and revolution, we excluded the years 1914–1919 and 1939–1945; the years 1870–1871 were included however, since, according to Durkheim, the Franco-Prussian War was a conflict in which Bavarians held little emotional stake (Durkheim, p. 230).

In the years between 1865 and 1943, Bavaria experienced few changes in its frontiers. The territorial modifications in the years 1919–1920, caused by the cession of the Saar-Palatinate and the accession of Coburg, yielded an exchange of populations of only 1.1%. Furthermore,

Andreas Wiedenmann (✉) · Siegfried Weyerer  
Central Institute of Mental Health, POB 122 120,  
D-68072 Mannheim, Germany

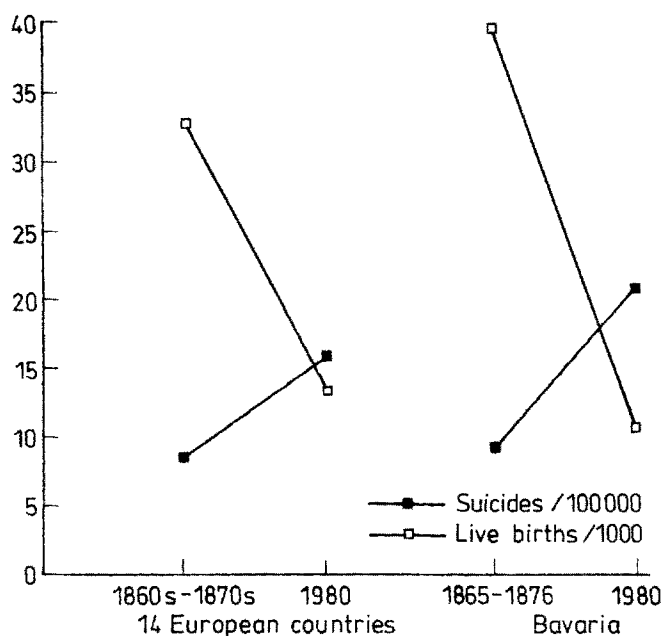


Fig. 1 Rates of suicide and birth rates in 14 European countries (Lester 1993) and Bavaria, 1865–1876 and 1980

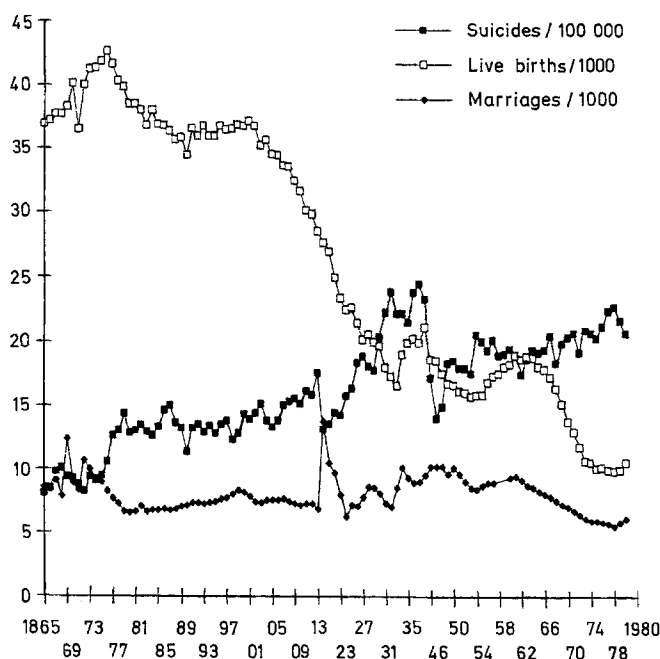


Fig. 2 Rates of suicide, birth rates and rates of marriage in Bavaria, 1865–1980

the 1939 annexation of the Sudetenland increased the population by only 1.1%. In 1945, Bavaria lost its last territory west of the Rhine (the Palatinate); however, the relative size of the population in the relinquished area was only 12.8%. On the basis of this territorial constancy, a continuity of sociocultural factors unusual for the German *Länder* provides favorable research conditions for epidemiological-psychiatric analyses.

The data used stem from the "Statistical Almanacs for Bavaria" ("Statistische Jahrbücher für Bayern") (Vols.

1–25), the Periodical of the Bavarian Statistical Office ("Zeitschrift des Bayerischen Statistischen Landesamtes") (Vols. 1–75), "Bavaria in Figures" ("Bayern in Zahlen") (Vols. 1–35), the "General Report on Health Administration in Bavaria" ("Generalbericht über die Sanitätsverwaltung in Bayern") (Vols. 1–30), and the "Report on the Bavarian Health Care System" ("Bericht über das bayerische Gesundheitswesen") (Vols. 1–88). For the years prior to 1871, birth rates are available for the administrative year (September–October). The birth rates for the years preceding the Second World War, which contain the stillborn, were converted on the basis of the corresponding absolute figures.

## Results and discussion

We calculated a correlation coefficient of  $r = -0.87$  ( $P < 0.001$ ) between the rates of suicide and the birth rates in the period 1865–1980. The results thus indicate a dependency of the Bavarian rate of suicide upon the frequency of births. One explanation for the fact that such a relationship cannot be found in the cross-sectional comparison of 1865–1876 might be that Bavaria, with a non-Catholic population of 28.7%, belonged to the ideologically and culturally relatively heterogeneous, and thus more socially inconsistent, of the countries studied (see Durkheim, pp. 162–163), and thus had a higher rate of suicide. Another possible explanation might be the considerable rate of divorce in Bavaria as compared to other nations. An indication of this is the fact that eight of the 14 countries compared by Lester, which in Durkheim's day did not permit divorce or, according to Durkheim (p. 297), had a divorce rate lower than that in Bavaria, with one exception, also demonstrated a lower average rate of suicide than in Bavaria. A third interpretation assumes an impairment of Lester's analysis by the probably very great transnational variability in the precision of suicide registration (Labovitz 1968). In Finland, one of the countries studied by Lester, where until 1980 the suicide rate increased eight fold, there is good reason to suspect an extremely incomplete documentation for the years 1865–1876. Finally, a distortion of the correlations by composition of means for several years is conceivable.

Since Lester had also analyzed the influence of the rates of marriage (marriages per 1,000 inhabitants) as well as the influence of the birth rate, we too calculated the corresponding correlation with the rates of suicide between 1865 and 1980. We arrived at a nonsignificant coefficient of  $r = -0.19$ . Multiple regression analyses for both variables yielded  $R = 0.88$  as well as beta weights of  $-0.86$  ( $P < 0.001$ ) for the birth rates and  $-0.15$  (nonsignificant) for the rates of marriage.

As opposed to the birth rates, the rates of marriage were only slightly related to the rates of suicide. Lester also failed to find a high correlation, in conformity with the hypothesis derived from a cross-sectional comparison of the countries ( $r = +0.29$  for 1865–1876 and  $r = -0.33$  for 1980, both nonsignificant). These results are in agree-

ment with Durkheim's observation that in France, the rate of marriage had hardly changed since the beginning of this century, while the suicide rate had trebled.

In future studies, we plan to take into account additional factors such as economic stressors and the availability, attraction, and lethality of suicide methods, which strongly vary over time and might plausibly explain additional variance in suicide rates.

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