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**Rapid communication****Suicide rates before, during and after the world wars**

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**Summary** – Suicide rates were found to decline during the major world wars of this century in both men and women and in both participating and non-participating nations. The increase in suicide rates after the conclusion of the wars, however, was not as pronounced.

war / suicide

**Introduction**

Durkheim (1897) noted that suicide rates declined during wars, both in men and women. Rojcewicz (1971) claimed that this was also true for more recent wars and that the decline was found in nations participating in the war and those who did not participate. The decline in women and in nations not participating in the war made it unlikely that the decline in suicide rates during war was due to official undercounting or to men committing suicide in such a way that they were recorded as war casualties rather than suicides. Rojcewicz (1971) concluded that the most likely explanation for lower suicide rates during war time was that provided by Durkheim who argued that war increases the level of social integration within societies, and that this higher level of social integration results in a reduction in the suicide rate.

Interestingly, however, no statistical analysis of the effects of war on suicide rates in the two World Wars of this century have appeared. Rojcewicz wrote in essay form and did not provide adequate statistical tests of his hypotheses. Thus, the present study was designed to explore the impact of war on suicide rates using World Wars' One and Two employing standard inferential statistics.

**Method**

Data on the annual suicide rates by sex for nations of the world prior to, during and after the two World Wars were obtained from Anon (1956). For the First World War, three four-year periods were examined: 1910-1913, 1915-1918, and 1919-1922. For the Second World War, three six-year periods were examined: 1933-1938, 1940-1945, and 1946-1951. The suicide rates of each nation for each period were averaged. Data on which nations participated in each World War were obtained from Singer and Small (1972), even when the present author disagreed with their judgment.

**Results***Total suicide rates*

The data for the First World War are shown in table I. It can be seen that the suicide rate decreased from a mean of 11.83 prior to the war to 10.03 during the war ( $t_{14} = 3.55$ , one-tailed  $P < 0.005$ ) and then increased after the war to a mean of 10.95 ( $t_{14} = 2.29$ ,  $P < 0.01$ ).

The data for the Second World War are shown in table II. The suicide rate for the total sample of nations dropped from a mean of 12.15 prior to the war to 10.51 during the war ( $t_{19} = 5.10$ ,  $P <$

**Table I.** Average suicide rates before, during and after World War I (per 100,000 per year).

	Total rates			Male rates			Female rates		
	Before	During	After	Before	During	After	Before	During	After
<i>Participants</i>									
England & Wales	9.85	7.25	9.45	15.20	10.90	14.42	4.87	4.37	5.12
Germany	22.25	16.50	20.67	34.05	21.52	28.32	10.72	11.70	13.55
Italy	8.40	7.45	7.67	12.52	10.87	11.20	4.42	4.10	4.30
Japan	19.07	18.07	19.37	23.65	22.37	23.55	14.37	13.72	15.12
Scotland	5.80	4.45	5.25	8.72	6.60	7.92	3.02	2.42	2.77
USA	15.60	13.67	11.45	23.37	20.60	16.87	7.27	6.70	5.85
<i>Non-participants</i>									
Australia	12.72	11.22	10.85	19.97	18.17	17.42	4.87	4.20	4.05
Finland	10.07	9.45	10.52	16.07	14.85	16.97	4.30	4.25	4.40
Ireland	3.57	2.57	2.57	5.45	4.00	4.12	1.70	1.17	0.95
The Netherlands	6.30	6.27	6.87	9.60	8.85	10.12	3.05	3.60	3.50
New Zealand	12.00	11.30	12.32	19.00	18.87	19.30	4.27	3.72	4.97
Norway	5.52	3.95	5.25	9.25	6.55	8.60	2.05	1.52	2.00
Spain	4.77	6.22	5.15	7.60	9.52	8.07	2.07	3.15	2.40
Sweden	17.90	12.20	14.50	29.72	19.15	23.45	6.57	5.50	5.95
Switzerland	23.60	19.90	22.45	39.40	31.80	35.25	8.32	8.85	10.55
<i>All nations</i>									
Mean	11.83	10.03	10.95	18.24	14.97	16.37	5.46	5.26	5.70
sd	6.52	5.29	6.04	10.21	7.64	8.58	3.52	3.59	4.16
<i>Participants</i>									
Mean	13.49	11.23	12.31	19.58	15.48	17.05	7.44	7.17	7.78
<i>Non-participants</i>									
Mean	10.72	9.23	10.05	17.34	14.64	15.92	4.13	4.00	4.31

0.0005) but did not rise significantly after the war ( $t_{19} = 0.45$ ).

#### Gender differences

For the First World War (see table I) the decrease in male suicide rates during the war was statistically significant ( $t_{14} = 3.39$ ,  $P < 0.005$ ) as was the increase after the war ( $t_{14} = 2.13$ ,  $P < 0.05$ ). For women, however, the decrease during the war was not statistically significant ( $t_{14} = 1.14$ ) but the increase after the war was statistically significant ( $t_{14} = 2.03$ ,  $P < 0.05$ ).

For the Second World War (see table II), the decrease in male suicide rates during the war was statistically significant ( $t_{19} = 8.03$ ,  $P < 0.0005$ ) but the increase afterwards was not ( $t_{19} = 0.98$ ). For women, neither change was statistically significant ( $t_{19} = 0.13$  and  $0.72$ ).

#### Participants versus non-participants

The comparison of nations participating in the two World Wars and those nations not participating

indicated that the decline in suicide rates during the wars was found in both sets of nations. The decline was found in the overall rates, the rates for men and the rates for women and in both sets of nations in the First World War. For the Second World War, the only deviation was for female suicide rates in non-participating nations, for whom the suicide rate rose during the war from the pre-war level.

#### Discussion

The present analyses have confirmed Durkheim's (1897) claim that suicide rates decrease during wartime. Data from the First World War and the Second World War show that national suicide rates declined during the wars from pre-war levels in both men and women and in both participating and non-participating nations.

The one modification to this general finding is that not all nations experienced an increase after the end of the two world wars. Durkheim attri-

Table II. Average suicide rates before, during and after World War II (per 100,000 per year).

	Before	Total rates During	After	Before	Male rates During	After	Before	Female rates During	After
<i>Participants</i>									
Australia	11.50	8.32	9.63	17.75	11.95	14.35	5.08	4.60	4.87
Belgium	17.43	13.72	14.08	27.23	20.05	21.35	7.83	7.55	7.07
Canada	8.60	7.02	7.73	13.00	10.17	11.67	3.92	3.75	3.65
England & Wales	13.08	9.60	10.58	18.52	13.73	14.03	8.08	6.43	7.45
Finland	19.38	17.42	16.33	33.08	29.50	27.85	6.32	6.20	5.82
Italy	8.00	5.03	6.22	12.15	7.53	9.25	4.07	2.62	3.35
The Netherlands	8.20	8.38	6.45	11.32	10.15	8.53	5.10	6.63	4.37
New Zealand	11.60	10.12	9.55	17.35	14.55	13.62	5.67	5.83	5.47
Northern Ireland	4.70	3.67	3.80	7.52	5.98	5.65	2.03	1.55	2.02
Norway	6.58	6.10	6.68	10.35	9.62	10.83	2.95	2.70	2.67
Scotland	9.85	7.22	5.77	14.07	9.73	7.85	5.93	4.85	3.82
South Africa	10.08	7.48	9.98	15.62	11.02	15.23	4.02	3.83	4.70
USA	14.95	11.77	11.23	22.90	17.82	17.35	6.85	5.92	5.33
<i>Non-participants</i>									
Ceylon	6.72	6.35	6.43	8.95	8.47	8.42	4.22	3.88	4.20
Denmark	19.03	20.12	24.60	26.70	23.75	31.27	11.60	16.58	18.03
Ireland	3.27	2.78	2.53	5.03	4.37	4.03	1.42	1.22	0.98
Luxembourg	16.50	14.18	12.45	25.88	21.42	20.23	6.93	6.93	4.67
Portugal	11.47	10.10	9.85	17.75	15.43	15.35	5.63	5.18	4.77
Sweden	16.00	15.11	15.37	25.63	23.28	23.28	6.63	7.08	7.48
Switzerland	26.07	24.73	23.70	41.48	36.80	35.15	11.70	13.45	13.00
<i>All nations</i>									
mean	12.15	10.51	10.65	18.61	15.27	15.76	5.80	5.83	5.69
sd	5.69	5.74	5.87	9.24	8.36	8.51	2.67	3.66	3.84
<i>Participants</i>									
mean	11.07	8.91	9.08	16.99	13.21	13.66	5.22	4.80	4.66
<i>Non-participants</i>									
mean	14.15	13.34	13.56	21.63	19.07	19.68	6.88	7.76	7.59

buted the decline in suicide rates during wartime to the increase in the degree of social integration in the citizens of nations, which in turn results in a decrease in suicidal behavior. The failure to always find an increase in suicide rates after the two world wars may, therefore, be attributable to the possibility that the increased social integration, which is presumed to take place during the war, persists after the war. It would, therefore, be of interest to devise an operational measure of social integration and to explore how this meas-

ure changes in nations during and after major wars.

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