

# COMPARING THE CHANGING SUICIDE RATE IN SINGAPORE WITH THE RATES IN ENGLAND/WALES AND THE USA, 1950 – 1985

D Lester

## ABSTRACT

*Whereas marriage and birth rates were significantly associated with the time-series annual suicide rate from 1950 to 1985 in England and Wales and birth rates were associated with the annual suicide rate in the USA, neither variable was significantly associated with the annual suicide rate in Singapore. It seems that different theories of suicide may have to be proposed in order to account for the societal suicide rate in Asian nations.*

**Keywords:** *suicide, social integration, divorce, fertility, marriage*

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## INTRODUCTION

In order to explain the societal suicide rate, Durkheim<sup>(1)</sup> proposed that two sociological variables could account for the variation in suicide rates: the degree of social integration (that is, the extent to which the members of a society are bound together in social relationships) and the degree of social regulation (that is, the extent to which the desires and behaviour of the members of the society are regulated by the norms and customs of the society). In modern societies, research has indicated that suicide rates are higher when the levels of social integration and regulation are low.

There have been several time-series studies of the suicide rate in the USA and in European nations exploring whether socioeconomic variables are associated with, and therefore predict, the annual suicide rate. Following Durkheim, social scientists have predicted that domestic integration, that is to say, high marriage rates and high birth rates, would lead to low suicide rates in societies because the increased social integration (in this case, provided by a spouse and children) protected people from suicide. Lester, Curran and Yang<sup>(2)</sup> found indeed that higher rates of marriage were associated with lower suicide rates in both the USA and in Northern Ireland, significantly so in Northern Ireland.

It is of interest to explore whether results found in one nation generalise to other nations. This paper examines whether results similar to those identified in Western nations would be found also in Asian nations. Identical data sets (with measures of the suicide rate, the marriage rate and the birth rate) were identified for Singapore, England and Wales and the USA, and identical time-series regression analyses were run on all three data sets so that comparable results would be obtained.

## METHOD

Suicide rates for Singapore for the period of 1950-85 were obtained from official sources. Suicide rates for the same period for England and Wales and for the USA were

obtained from the World Health Organisation<sup>(3)</sup>. These sets of suicide rates are shown in Table I. Crude marriage and birth rates were obtained for all three nations from the United Nations<sup>(4)</sup>.

**Table I – Suicide rates for Singapore, England & Wales and the USA (per 100,000 per year)**

	Singapore	England & Wales	USA
1950	14.4	10.2	11.4
1951	9.0	10.1	10.4
1952	11.1	9.8	10.0
1953	13.3	10.7	10.1
1954	9.6	11.3	10.1
1955	10.7	11.2	10.2
1956	9.5	11.8	10.0
1957	10.2	11.8	9.8
1958	8.0	11.7	10.7
1959	10.6	11.4	10.6
1960	8.6	11.1	10.6
1961	8.5	11.2	10.4
1962	7.9	11.9	10.9
1963	8.6	12.1	11.0
1964	8.0	11.7	10.8
1965	7.7	10.8	11.1
1966	10.0	10.4	10.9
1967	9.4	9.7	10.8
1968	11.1	9.4	10.7
1969	9.2	8.8	11.1
1970	8.9	8.0	11.6
1971	10.9	8.1	11.7
1972	10.9	7.7	12.0
1973	10.9	7.8	12.0
1974	10.3	7.9	12.1
1975	11.1	7.5	12.7
1976	11.2	7.8	12.5
1977	9.6	8.0	13.3
1978	11.3	8.2	12.5
1979	10.4	8.5	12.1
1980	11.2	8.8	11.9
1981	7.8	8.9	12.0
1982	9.7	8.6	12.2
1983	10.7	8.6	12.1
1984	8.3	8.7	12.4
1985	12.8	8.8	12.3

Centre for the Study of Suicide  
RR41, 5 Stonegate Court  
Blackwood  
New Jersey 08012  
United States of America

D Lester, PhD  
Executive Director

The time series regressions were ran using a statistical package from Doan<sup>(5)</sup>, using the Cochrane-Orcutt method to correct for serial autocorrelation.

## RESULTS

The results of the regression analyses are shown in Table II. It can be seen that, for the USA from 1950-85, higher marriage rates and higher birth rates were associated with lower suicide rates, as predicted by Durkheim's theory, with regression coefficients of -0.273 and -0.248 respectively. The association for birth rates was statistically significant.

**Table II – Results of the time series regression for the three nations, 1950-1985 (unstandardised regression coefficients are shown)**

	Constant	Marriage Rate	Birth Rate	R <sup>2</sup>
Singapore	8.761*	0.118	0.014	0.03
England & Wales	8.290	-0.663*	0.395**	0.95
USA	18.691***	-0.273	-0.248***	0.88

\* p < .05

\*\* p < .01

\*\*\* p < .001

For England and Wales from 1950-85, higher marriage rates were also associated with lower suicide rates as in the USA (regression coefficient = -0.663), but higher birth rates were associated with higher suicide rates (regression coefficient = +0.385), unlike the USA.

For Singapore, however, the effects of marriage and birth rates were not significantly associated with suicide rates (regression coefficients = 0.118 and 0.014 respectively). Where the marriage and birth rates accounted for 95% of the variance in the suicide rates for England and Wales and 88% of the variance in the suicide rates for the USA, the two variables accounted for only 3% of the variance in the suicide rates in Singapore!

## DISCUSSION

Durkheim's hypothesis about the association between domestic integration and suicide rates was valid for the USA, partly valid for England and Wales, but invalid for Singapore. There are two possible reasons for these differences.

Firstly, it may be that the operational measures of domestic integration are indicators of different social phenomena in the three nations. For example, the divorce rate in Singapore in 1980 was 0.61 per 1,000 per year, the marriage rate 9.8 and the birth rate 17.1. The corresponding rates for England and Wales were 2.99, 7.5 and 13.2; for the USA 5.19, 10.4 and 15.9. Thus, it is clear that divorce is most

common in the USA, more common in England and Wales and least common in Singapore. One result of this is that a larger proportion of marriages in the USA are remarriages than in Singapore. In Singapore, people are more likely to move from living with parents to living with a spouse, and so marriage may not necessarily increase the level of domestic social integration. In contrast, in the USA, while some people move from living with parents to living with a spouse, others move from being divorced and living alone to being married. Thus, marriage may truly increase domestic social integration more in the USA than in Singapore. Comparative studies on marriage and divorce in the two nations might support this hypothesis.

A second reason for the differences in the results for the three nations is that different theories may be necessary for non-European cultures. Firstly, suicidal behaviour is different in Asia than in other continents. For example, the suicide rate for women is much closer to that of men in Asia than elsewhere. The methods used for suicide are different, and variation of suicide rates by age different<sup>(6)</sup>. Secondly, Asian culture is quite different from European culture. In particular, the major population group in Singapore is Chinese as compared to European for the USA. The major religions in Singapore are Buddhism, Hinduism and Islam compared to Christianity in the USA. With an area of about 600 square kilometres, Singapore is much more urban and densely populated than the USA. Each of these factors (ethnicity, religion, and urbanisation) could result in different determinants of the societal suicide rate, and there might be other important factors in addition which are relevant to a theory of suicide.

Durkheim's theory of suicide was proposed by a European from the nineteenth century. It is remarkable that the theory was held up so well in the subsequent one hundred years. However, it would be of great interest to see what theories of suicide might be proposed by scholars from Asia and other parts of the world in the twentieth and twenty-first centuries. It is hoped that this article will stimulate such work.

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