لینک‌های مفید

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Does adversity early in life affect general population suicide rates? a cross-national study

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Abstract:

Background: Adversity early in life has been suggested as a protective factor for elderly suicides. However, studies examining this relationship in general population suicide rates are scarce.

Methods: The relationship between general population suicide rates and four proxy measures of adversity earlier in life was examined using data from the World Health Organization and the United Nations data banks.

Results: General population suicide rates were negatively correlated with the percentage of children under the age of 5 years who were underweight, the percentage of children under the age of 5 years who were under height, the percentage of infants with low birth weight babies, and the percentage of the general population that was undernourished. The only independent predictor of general population suicide rates in both sexes, on multiple regression analysis, was the Gini coefficient (a measure of income inequality).

Conclusions: Income inequality may lead to low birth weight, undernourishment, underweight and under height because income inequality results in poor access to healthcare and nutrition. These adversities may increase child mortality rates and reduce life expectancy. Those surviving into adulthood in countries with greater adversity early in life may be at reduced risk of suicide because of selective survival of those at reduced risk of suicide due to constitutional or genetic factors and development of greater tolerance to hardship in adulthood.

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Introduction

Elderly suicide rates and general population suicide rates have been shown to be low in countries with low socio-economic status including those with greater income inequality. Life expectancy is also reduced in these countries. Therefore, given that suicide rates generally increase with age, it is possible that in some countries with low elderly suicide rates fewer people will reach the age of increased risk of suicide due to reduced life expectancy. Moreover, selective survival of those at reduced risk for suicide due to genetic or constitutional factors may further compound this trend. Furthermore, those who do may be at reduced risk of suicide in old age because they may be able to tolerate extra hardship in old age better due to exposure to life-long adversity. For example, elderly African Americans and native Americans (Indians) have low suicide rates and this has been attributed to a life-long history of socio-economic deprivation. The relationship between exposure to adversity early in life and general population suicide rates has not be
examined. Therefore, a cross-national study examining the relationship between general population suicide rates and several proxy measures of adversity earlier in life was undertaken.

Methods

Data on general population suicide rates for males and females was ascertained from the WHO website (www.who.int/whosis/database/mort/table1.cfm) for the latest available year, and the median (range) of this latest year across the different countries was 2000 (1985-2003). They cover all age groups.

The United Nations Development Programme (UNDP) website (www.hdr.undp.org/reports/global/2005/pdf/hdr05_HDI.pdf) provided data on the percentage of children under the age of 5 years who were underweight, the percentage of children under the age of 5 years who were underheight, the percentage of infants with low birth weight babies, and the percentage of the general population that was undernourished. These four variables were available for an unspecified year between 1996 and 2004. These four variables were considered to be proxy measures of adversity earlier in life; although these measures may have changed over time, they are likely to have improved and may still give an indication of adversity earlier in life. The relationship between general population suicide rates and the five proxy measures of adversity earlier in life was examined with Spearman’s rank correlation (rho).

The four measures of adversity earlier in life were inter-correlated. Moreover, previous studies have shown suicide rates to be correlated with GDP and income inequality measured by the Gini coefficient. Thus, the independent relationship between general population suicide rates and measures of adversity earlier in life was examined using multiple regression analyses with the Enter method: general population suicide rate was the dependent variable and all four proxy measures of adversity earlier in life, GDP and the Gini coefficient were the independent variables. The WHO website (www.who.int/countries/en) provided data on the GDP for the year 2002. The UNDP website provided data on a measure of income inequality called the Gini coefficient (www.hdr.undp.org/reports/global/2005/pdf/hdr05_HDI.pdf).

Results

Table 1 illustrates the relationship between general population suicide rates and the proxy measures of adversity earlier in life. Suicide rates in males and females were significantly and negatively correlated with the percentage of children under the age of 5 years who were underweight, the percentage of children under the age of 5 years who were underheight, the percentage of infants with low birth weight babies, and the percentage of the general population that was undernourished.

On multiple regression analyses, the only independent predictor of general population suicide rates in males (P=0.031) and females (P=0.009) was the Gini coefficient.

Discussion

Some methodological issues need consideration. First, cross-national data on suicide rates should be viewed cautiously because: data are not available from all countries; the validity of this data is unclear; the legal criteria for the proof of suicide vary between countries and between different regions within a country; some countries, particularly low-income countries, may have poor death registration facilities; and, cultural and religious factors and stigma attached to suicide may lead to under-reporting of suicides. Second, data on socio-economic status and proxy measures of adversity earlier in life should also be viewed cautiously because: the validity of this data is unclear; some countries may have poor registration facilities for data on these measures; and, some countries may have poor infrastructure for providing accurate financial data. These latter concerns are more likely to be observed in low-income countries. Third, several variables were assumed to be proxy measures of adversity earlier in life. Fourth, caution should be exercised in assuming the direction of causal relationships in this cross-sectional and ecological study because of ecological fallacy. Nevertheless, the best and the latest available data were ascertained from the WHO and UNDP data banks.
The observed negative correlations between general population suicide rates and the four proxy measures of adversity earlier in life may be explained by the above methodological difficulties. However, it is possible that the correlations are genuine because they confirm earlier reports of an association between life-long adversity and lower elderly suicide rates.\(^4\)\(^5\) Possible explanations for these correlations are explored below in the context of the finding from the multiple regression analyses that the Gini coefficient was the only independent predictor of general population suicide rates.

Income inequality, as measured by the Gini coefficient, may lead to low birth weight, undernourishment, underweight and underheight because income inequality results in poor access to healthcare and nutrition.\(^1\) These adversities may increase child mortality rates. Increased child mortality rates, in turn, reduces life expectancy.\(^1\),\(^7\),\(^15\) Given that suicide rates generally increase with age,\(^3\),\(^16\) reduced life expectancy will result in fewer people reaching the age of increased risk for suicide (i.e. adulthood) in countries with greater adversity early in life. This is supported by positive correlations between life expectancy and suicide rates in the elderly\(^1\) and the general population in cross-national studies. Suicide rates in those who survive into adulthood in such countries may be further reduced for two reasons. First, this trend may be further facilitated by selective survival of those at reduced risk for suicide due to genetic or constitutional factors. Second, those who survive into adulthood in such countries may be at reduced risk of suicide because they may have greater tolerance of additional hardship due to earlier exposure to adversity;\(^4\),\(^5\) this has been suggested as an explanation for low elderly suicide rates among African Americans and native Americans in the US.\(^6\) This hypothesis could be tested in long-term within-country longitudinal studies where adversity early in life changes over time.

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**Ethical approval:** This was not needed as No patients involved and data published in the public domain were used.

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**References**

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