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Original Communication

Suicides in Northern India: Comparison of trends and review of literature

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Abstract

Trends of suicide vary widely according to time, region, age group, sex, and race. Despite mixed trends of increases or decreases in suicide rates around the world, suicide remains an important public-health problem. In an effort to understand and prevent suicide, researchers have investigated medical, psychosocial, cultural, and socio-economic risk factors associated with the environment as a promising line of research. There is now considerable evidence that childhood and family adversities in general such as childhood sexual and physical abuse, witnessing domestic violence, parental separation or divorce and living with substance abusing, mentally ill or criminal family members may be both strongly interrelated and individually related to suicidal behavior in adolescents as well as adults. The approach towards prevention of suicide has to be multidisciplinary. To recognize that adverse childhood experiences that frequently take place as multiple events, identifying and treating those young people who have been exposed to such experiences, promoting increased awareness among parents, teachers, and health professionals of the important role that severe interpersonal difficulties and dysfunctional cognitions can play in the development of suicidal behavior in young people, and helping parents modify their maladaptive child-rearing behavior could help. Child and family support programs, employment support for mothers, and legal guarantees of gender equality, could moderate problems of socio-economic disparity and poverty, which predicts both parents' and children's suicidal behaviors in modern societies.

Keywords: Suicide; Suicide methods; Suicide rate; Suicide prevention; Unnatural deaths

1. Introduction

Suicide is a recognized major public-health problem, worldwide. It is related to a number of risk factors like psychiatric disorders and psychological, social and biological factors. Death as a result of self-inflicted injuries has been reported to account for 1.5% of total deaths among all sexes, and ranked within the leading two causes of death among 15–34-year-old people in a selection of European countries and China, and is the 10th leading cause of death worldwide.[1] A recent study from China estimated that 3.6% of all deaths in China are due to suicide.[2] However, among the seven countries with population over 100 million, from which data are available, the age-standardized suicide rates over specific time periods, have been reported to vary widely.[3] Given the public health impact of this problem, it becomes essential to gather information on mortality from suicide in various countries.

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With reference to trends in rates, in the 1970s and 1980s, suicide rates moved upwards in elderly men from North America and in younger men in Japan and several European countries, but were generally more stable for women. Furthermore, there were substantial (over 10-fold) differences in rates, between the highest ones from Hungary, Finland, Denmark, the former Soviet Union and Sri Lanka, and the lowest ones in South America or southern Europe.[4] Overall age-adjusted (on the world standard population) male mortality rates from suicide in Hungary or Sri Lanka were of the order of 50/100,000, i.e. higher than cardiovascular mortality rates in Japan or France.[5] However, the aggregate figures are said to hide variations that have occurred among sexes, age groups and regions.[6] In order to assess the actual magnitude of the problem and to plan effective steps to counter it, research should be conducted to plot the changing trends in mortality from suicide in different countries and to correlate these to risk and protective factors. The changing trends over the years should be analyzed keeping in perspective the psychosocial, economic and political factors involved and the availability of policies, programs or services to tackle the problem.

With reference to trends in suicides among the young, substantial rises were observed in the 1980s in several European countries, including the UK,[7] Spain,[8] Italy,[9,10] Japan, Australia and New Zealand.[11–13] These upward trends in younger males have now tended to level off in several countries, or to decline in other, such as Sweden[14] and Japan. However, substantial upward trends in suicide rates were still present over the most recent calendar periods in Ireland, as well as Australia and New Zealand, with rates of the order of 35–45/100,000, calling therefore for urgent intervention.[15] In Russia and other countries from the former Soviet Union,[16] suicide mortality rates rose over the last decade by about 10% for females, and by over 50% for males. Of even greater importance is the still increasing rate of suicide in young women and, mostly, young men in Russia, whose rates have been reported 66/100,000 men aged 15–34 years. Available data from approximately 10% of the population of China show an overall suicide rate around 23/100,000, with higher rates for women and in rural areas.[2]

The reasons for these rises are likely to be complex, but are likely to include widespread alcohol abuse.[17–19] The patterns and trends observed are, to some extent, influenced by changes in identification and classification. It is also known that a variable proportion of suicidal deaths can be attributed to other (violent) causes of death in various countries and calendar periods.[2,15] Notwithstanding the bias and errors, prevalence of psychiatric conditions, mainly depression and alcohol use disorders and their management, may have influence on national suicide rates.[20–24] In addition, the major determinants of the substantial variation in suicide rates across geographical areas and calendar periods should be sought in economic, socio-cultural features and characteristics (including deprivation and unemployment), but also other risk factor exposures of various populations.[25–31] Some of the favorable trends in middle age and elderly individuals of both sexes, but mainly women, in several countries may be due to changes in the management of depression and other major psychiatric disorders, or to improved social networking. A role may have been played also by reduced availability of methods of suicide, including gas detoxification and the introduction of catalytic converters.[11,32] It is almost impossible, however, to find a common cause for all the different trends across regions and countries, but certain factors like religion, socio-economic instability, poverty and unemployment, easy access to means of committing suicide, individualistic vs. collectivistic orientation, mental disorders and substance use disorders are those commonly implicated.

Although socio-economic instability is associated with an increase in suicide rate but this is not always true.[33] Unemployment and financial loss seem to have an unfavorable effect on suicide rate in some countries.[29,34–36] Results from countries like India, Sri Lanka, China and USA, show that availability of insecticides and guns have been increasingly associated with increased suicide rates.[37,2,3] Among mental disorders, depression is said to be associated with the highest risk of suicide.[38] Researchers believe that both depression and suicidal behavior can be linked to decreased serotonin in the brain. Low levels of a serotonin metabolite, 5-HIAA, have been detected in cerebral spinal fluid in persons who have attempted suicide, as well as by postmortem studies examining certain brain regions of suicide victims. It has been reported that serotonin receptors in the brain increase their activity in persons with major depression and suicidality, which explains why medications that desensitize or down-regulate these receptors (such as the serotonin reuptake inhibitors) have been found effective in treating depression. Among substance use disorders, alcohol abuse has been linked with increased suicide rates.[39–41] We examined the trends of completed suicides in Northern India over a period of ten years.

2. Materials and methodology

This retrospective study was conducted at the department of Forensic Medicine, Government Medical College and Hospital, Chandigarh, a tertiary care center for the union territory and referral center for the adjoining states of Punjab, Haryana and Himachal Pradesh. The material for the present study comprised of 3178 cases of unnatural deaths subjected to medicolegal autopsy during the period from January 1996 to December 2005. (A medicolegal autopsy is mandatory in this region for all unnatural deaths irrespective of the death being accidental, suicidal or homicidal.) Data on relevant factors were collected from various sources, mainly case papers/hospital records, inquest papers and information furnished by the relatives of the deceased and the police at the time of autopsy. The results of 1421 cases, where the manner of death as alleged at the time of autopsy or confirmed by the investigating agency,