Journal of Adolescent Health 54 (2014) 262–268

ELSEVIER

JOURNAL OF ADOLESCENT HEALTH

www.jahonline.org

Original article

Suicide Among Young People in the Americas

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Article history: Received February 22, 2013; Accepted July 11, 2013

Keywords: Adolescent and youth suicide mortality rates; Relative risks; Average annual percent variation; Suicide in young people

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A B S T R A C T

Purpose: To examine suicide mortality trends among young people (10–24 years of age[1]) in selected countries and territories of the Americas.

Methods: An ecological study was conducted using a time series of suicide mortality data from 19 countries and one territory in the Region of the Americas from 2001 to 2008, comprising 90.3% of the regional population. The analyses included age-adjusted suicide mortality rates, average annual variation in suicide mortality rates, and relative risks for suicide, by age and sex.

Results: The mean suicide rate for the selected study period and countries/territory was 5.7/100,000 young people (10–24 years), with suicide rates higher among males (7.7/100,000) than females (2.4/100,000). Countries with the highest total suicide mortality rates among young people (10–24 years) were Guyana, Suriname, Nicaragua, El Salvador, Chile, and Ecuador; countries with the lowest total suicide mortality rates included Mexico, Venezuela, Cuba, and Brazil, and the U.S. territory of Puerto Rico. During this period, there was a significant increase in suicide mortality rates among young people in the following countries: Argentina, Chile, Ecuador, Mexico, and Suriname; countries with significant decreases in suicide mortality rates included Canada, Colombia, Cuba, El Salvador, and Venezuela. The three leading suicide methods in the Americas were hanging, firearms, and poisoning.

Conclusions: Some countries of the Americas have experienced a rise in adolescent and youth suicide during the study period, with males at a higher risk of committing suicide than females. Adolescent and youth suicide policies and programs are recommended, to curb this problem. Methodological limitations are discussed.

IMPLICATIONS AND CONTRIBUTION

Suicide mortality among young people is a growing public health issue in the Americas. To develop effective suicide prevention programs and policies, public health policy and decision makers should consider the magnitude of the problem in different settings, groups most at risk, and the risk of suicide mortality over time.

A decade into the 21st century, the adolescent and youth population is the largest cohort in the history of the Americas, representing 26% of the total population [1]. These young people face a myriad of obstacles excluding them from health that are closely linked with poverty, marginalization, and discrimination. Whereas morbidity and mortality are relatively low during

[1] The World Health Organization defines young people as individuals between the ages of 10 and 24 years. Adolescents comprise the 10- to 19-year age group, and youth the 15- to 24-year age group.

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1054-139X/$ – see front matter
http://dx.doi.org/10.1016/j.jadohealth.2013.07.012

adolescence, the major causes of death for this age group are externally related, with suicide ranking among the top three causes of adolescent and youth mortality. Indeed, each year in the Americas, approximately 220,000 young people between the ages of 10 and 24 years commit suicide [2], which raises concern among policy and decision makers about the issue and its associated consequences in this region. This is not only because rates of suicide within this age group are increasing markedly in many countries, but also because it affects individuals, families, and communities.

Despite prevention efforts, suicide rates have increased globally over the past 45 years among young people (10–24 years). Suicide rates in young men have risen steadily between 1950 and 2000, whereas suicide rates in young women have declined at this time. Europe had the highest percentage of deaths from suicide, followed by the Western Pacific region, the Southeast Asian region, the region of the Americas, the Eastern Mediterranean region, and the African region [3,4]. In the United States, suicide ranked as the third leading cause of death among young people between 1999 and 2010, with rates almost 10 times higher among those aged 15–24 years [5]. Although it is difficult to explain variations between countries, research suggests that the differences in rates may result from socioeconomic, geographic, cultural, and social factors [6].

Suicide rates in the Americas vary by age. Among adolescents 10–14 years of age, suicide ranks as the 10th most common cause of death among boys, but not among girls. By 15–19 years of age, suicide was the third most common cause of death among males and the leading cause among females, whereas among those 20–24 years of age, it was the third most common cause of death among both [2].

Suicidal behavior varies by sex. Although adolescent girls are more likely to attempt suicide and experience suicidal ideation, adolescent boys are more likely to commit suicide [7] across all regions. It has been suggested that this may result from increased substance use, aggressive behaviors, and the ease with which males have access to more lethal means. In fact, young women are more likely to use less lethal means and less likely to die from suicide attempts [8]. Other factors that may be associated with male suicide are the shift in gender roles and socioeconomic inequalities [9].

Suicide methods vary by region. Hanging is the most common suicide method in Europe, Australia, and Japan, whereas poisoning is the most common method in China and India [10–12]. For attempted suicides, the methods generally used involve pharmaceutical or chemical products.

The purpose of this study was to estimate suicide rates, describe trends, identify suicide methods, estimate relative risk, and provide an overall picture of suicide among young people (10–24 years) in selected countries of the Americas, to bridge the data gap, further knowledge on suicide, and ultimately inform adolescent and youth suicide policy and programming.

Methods

To investigate adolescent and youth suicide mortality in selected countries of the Americas, an ecological study was performed using data collected between 2001 and 2008 by the Pan American Health Organization, the Regional Office of the World Health Organization in the Americas. Data are collected on an annual basis from Pan American Health Organization member states' national death registries. The countries use the International Classification of Diseases, 10th Revision to code deaths that occur annually (using codes X60–X84) consistently reporting on at least five variables (which was used in the final analyses): country name, year, age, sex, and basic cause of death. The variability across countries in the accuracy of these data is accounted for by measuring the percentages of deaths that have not been registered (under-registered) and the percentage of ill-defined causes of deaths (as outlined in Chapter XVIII of the International Classification of Diseases, 10th Revision). Although 48 countries were initially considered for analysis, 19 and one territory were selected based on the completeness and consistency of data. The 19 selected countries and territory, representing 90.3% of all young people in the region, include Argentina, Belize, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guyana, México, Nicaragua, Panama, Paraguay, Suriname, Trinidad and Tobago, the United States of America, Venezuela, and the U.S. territory of Puerto Rico.

A descriptive exploratory analysis was carried out by computing crude and age-adjusted suicide mortality rates for all countries. Crude suicide mortality rates were calculated using the number of suicide deaths as the numerator and the annual mid-period population by age and sex for the study period as the denominator [13]. Age-adjusted suicide mortality rates were computed using the standard population, as set by the World Health Organization's world population age-structure for the period 2000–2025 [14]. Descriptive statistical analyses were conducted computing trends and age-adjusted and crude suicide mortality rates by sex and age. A linear regression model was used to fit the logarithm of the age-standardized rates as the response and year as the covariate. This model estimated the average annual percentage rate variation, confidence intervals, and p values. In addition, negative binomial regression models were used to compute the estimated relative risk of dying, by country and sex. This model accounted for the inherent variability within a country. The data were analyzed using the statistical program SAS (SAS Institute Inc., Cary, NC).

Results

Suicide mortality among young people

Of the 1,233,251 deaths of young people (10–24 years) in the 19 countries and one territory between 2001 and 2008, suicide accounted for 92,530 (7.5%) of all deaths, with 35,064 suicides (37.8%) occurring in the United States.

The age-adjusted mortality rate among young people (10–24 years) was 5.7/100,000 young people. When disaggregated by age, rates were 3.8 and 8.0 among 10- to 19-year-olds and 15- to 24-year-olds, respectively (Table 1).

Suicide mortality rates varied across countries and were higher among men, with the exception of the adolescent group (10–19 years) in El Salvador, Ecuador, Paraguay, and Suriname, where women were more likely to commit suicide.

Countries with the highest total suicide mortality rates among young people (10–24 years), adolescents (10–19 years), and youth (15–24 years) include (per 100,000): Guyana (22.4, 15.6, and 31.4, respectively), Suriname (15.3, 10.7, and 19.8, respectively), Nicaragua (9.9, 7.1, and 14.0, respectively), El Salvador (9.9, 6.8, and 14.0, respectively), Chile (8.9 among young people and 12.6 among youth), and Ecuador (8.5, 6.8, and 8.5, respectively); the countries and territory with the lowest total suicide mortality rates include Mexico (4.5, 3.3, and 6.1, respectively), Venezuela (4.3, 3.0, and 5.8, respectively), Cuba (4.0, 2.5, and 5.8, respectively), Brazil (3.4, 2.1, and 4.8,