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Research report

The World Health Organization (WHO) dataset for guiding suicide prevention policies: A 3-decade French national survey

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ABSTRACT

Background: Public health policies aim to prevent suicide in the general population. Assessing their effectiveness is required to further guide public health policies. The present article focuses on the French paradox. The French health care system was classified as the best in the world according the World Health Organization (WHO). However, suicide rates in France remain high compared to other European countries. The aim of the present article was to analyze (i) the evolution of suicide Age-Standardized Death (ASDRs) in France during the last three decades and the associations with socio-economic parameters and (ii) to understand which populations may specifically benefit from further targeted suicide prevention policies.

Methods: The database of the World Health Organization (WHO), freely available, was explored in April 2015. ASDRs were calculated each year by ratio between the number of deaths by suicide and the total population (per 100,000 inhabitants). Number of deaths by gender and age were also analyzed.

Results: Overall, ASDR suicide has decreased since 1987 in France (−32.8% between 1987 and 2010). However, France kept the same rank (10/26) when compared to other European countries between 1987 and 2010. The relative burden of suicide in all-causes mortality increased during the same period (+28.2%) while the total number of deaths by suicide increased only slightly (+3.9%). More specifically, the number of deaths by suicide increased substantially in [35–54] years old (+40%) and 75+ years old (+27%) males, and in [35–54] (+41%) years old females. Between 2000 and 2010, suicide rates significantly decreased when yearly mean income increased, and when general and psychiatric care beds decreased.

Conclusion: Although ASDR suicide has decreased in France since 1987, this decline is quite modest when considering its universal access to care, the prevention of depression and suicide public policies. Suicide prevention public policies should focus on evaluation and improvement of prevention and care in the [35–54] years old population, and in the males aged 75+.

1. Introduction

The World Health Organization (WHO) published a report in 2014 stipulating that a person dies every 40 s from suicide somewhere in the world (WHO, 2014). In the year 2020, approximately 1.53 million people will die from suicide based on current trends and according to WHO estimates. Ten to 20 times more people will attempt suicide worldwide (WHO, 1999). This represents on average one death every 20 s and one attempt every 1–2 s. Suicide prevention is therefore a major issue for public health policies (Fond et al., 2013; Patel et al., 2007). Twenty-eight countries today (including France) are known to have national suicide prevention strategies, while World Suicide Prevention Day, organized by the International Association for Suicide Prevention, is observed worldwide on 10th September each year (WHO, 2014). To be effective, these policies

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need to rely on exhaustive and accurate deaths rates, in order to target specific populations and assess their effectiveness as well as the impact of social context.

Applying an evidence-based framework to public health practice is essential for effective program and policy planning, implementation, and evaluation. It has the potential to improve population health outcomes (Jacob et al., 2014). Over the past two decades, governments have significantly invested in policies and strategies to prevent the tragic loss of life to suicide. However, there has been little focus on evaluating the implementation of such policies (Sheehan et al., 2015). Increasing disease rates, limited funding, and the ever-growing scientific basis for intervention, demand the use of proven strategies to improve population health (Jacobs et al., 2012). Evidence-based decision-making (EBDM) has been defined as the integration of science-based interventions with community preferences to improve population health (Kohatsu et al., 2004). However, few studies remain at a national level and the largest competency gaps between EBDM and practice were found in economic evaluation, communicating research to policymakers, evaluation designs, and adapting interventions (Jacob et al., 2014). The scientific evidence for effective population-level interventions has grown rapidly over the past few decades, as summarized in systematic reviews such as the Cochrane Collaboration and the Community Guide (Brownson et al., 2012). Several tools have been developed to meet EBPH needs, including free online resources in health surveillance, policy tracking and surveillance.

To help countries monitoring their death rates and carrying effective public health programs, the WHO created an international mortality database, with all-causes mortality data from 1979 to 2010. The WHO mortality database is a compilation of mortality data by age, sex and cause of death (according to the criteria of ICD-9 up to 1993 and ICD-10 since 1993), freely available at http://apps.who.int/healthinfo/statistics/mortality/whodpms/. The data is collected and submitted within 18 months following the census. The data is then checked and treated for an average of two years before publication on the website. This data is prospectively recorded for every country, thus virtually covering the entire population. Published data was only taken from medical certificates.

France was chosen in the present work for several reasons, beyond the nationality of the authors. First, France, with 66 million inhabitants, was the second most populous country of Western Europe (excluding Germany after the German reunification in 1989). Second, France registered high quality data in the WHO mortality database, according to the Organization quality index (cf. infra). Third, a paradox may be noted due to the discrepancy between recent suicide mortality data and the quality of French health care system. The French health care system is one of universal health care largely financed by government national health insurance. In its 2000 assessment of world health care systems, the World Health Organization found that France provides the best overall health care among 191 member states (WHO, 2000). More than 200,000 people have access to the French health care system each year for suicide attempt (Observatoire National du Suicide, 2014). However, suicide rates in France were reported to remain the highest of Western Europe (Laanani et al., 2015). To deal with this major public health issue, multiple health policies were carried on. Some of them targeted medical care system with clinical audits for quality of care of suicide attempts (Bernardy-Prud'homme et al., 2011) and primary, secondary and tertiary prevention in general population (Bellanger et al., 2007). Some others targeted specific populations with school-based suicide prevention program (Wasserman et al., 2015), peer-prevention program in prisons (Auzoult and Abdellaoui, 2013), homophobic bullying prevention in youths homo- and bisexuals (Pugniere, 2013). A national prevention program was also recently developed in the elderly (Ruault and Doutreligne, 2013).

The aim of the present article was to analyze (i) the evolution of the burden of suicide in France during the three last decades with potential associated socio-economic parameters and (ii) to understand which population may specifically benefit from targeted suicide prevention policies using the WHO mortality database.

2. Methods

2.1. Data collection

Data source. Data for this study was extracted from the WHO mortality database (WHO MD). The WHO MD is an international database indicating the number of deaths by place, time and cause, based on the national civil registration systems of deaths in each country. The cause of death is defined as "the disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury", in accordance with the rules of the International Classification of Diseases. The WHO MD was explored in April 2015.

The most recent mortality data for France dated back to 2010. The last website update dated from July 2014 at the time of our analysis. Individuals who died by suicide were identified in the subsection "intentional self-harm" in the "Death by external cause". The description of the data collection mode is available at http://apps.who.int/healthinfo/statistics/mortality/whodpms/help/desc.htm.

This database contains exhaustive, anonymous, and linkable data. The WHO MD has been previously used to assess miscellaneous public health issues (Bustreo et al., 2015; Huisman et al., 2013; Souza and WHO Multicountry Survey on Maternal and Newborn Health Research Network, 2014; Vesel et al., 2010).

Data quality is checked annually according to the Health Facility Data Quality Report Card (DQRC). The DQRC examines completeness of reporting; internal consistency of reported data; external consistency of population data and external consistency of coverage rates (for more details see http://www.who.int/healthinfo/DQRC_Indicators.pdf). A return to the data collectors on the quality of their entered data is sent each year.

To determine which socio-economic parameters may be associated with suicide rates evolution, unemployment rates, yearly mean income, gross domestic product, yearly number of divorces, number of psychiatric care beds in hospital, expenditure on social protection and total expenditure on social benefits were extracted from Eurostat (http://ec.europa.eu/eurostat/) and the French National Institute of Statistics avec Economic Studies (INSEE) (http://www.insee.fr/fr/) databases.

2.2. Statistical analysis

In order to analyze suicide mortality evolution, Age-Standardized Death Rates (ASDRs) were defined as the yearly number of suicides in a country, divided by the population and multiplied with 100,000. WHO Global Health estimates 2012 as the year they gathered the best estimations. They computed them using standard categories, definitions and methods to ensure cross-country comparability. However, it may not be the same as official national estimates. ASDRs by gender were also calculated. The relative burden of suicide was calculated by the ratio between the suicide ASDR and the all-causes global ASDR.

Absolute number of deaths were further analyzed by 5 classes of ages (in years): [15–24], [25–34], [35–54], [55–74] and 75+ years, for both sexes and respectively males and females. The percentage of increase in each category between 1979 and 2010