

Spatial and Sociodemographic Analysis of Suicide Mortality in Mexico

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Short abstract

The analysis of suicide mortality in Mexico has primarily focused on examining individual health conditions and identifying patterns based on age, gender, and regions. However, there is a growing interest in understanding how internal migration processes and poverty impact the increase in mortality due to violent causes, especially because it has been observed in recent decades that some economic development hubs, characterized by high immigration rates and heterogeneous socioeconomic inequalities, have also experienced high suicide mortality rates in the country. Therefore, it is pertinent to conduct research with a population-based perspective that spatially dissects the connection between suicide and prevailing living conditions in the population, internal migration flows, and other differential sociodemographic factors such as education, marital status, and employment status. In this context, this study aims to analyze the evolution of the primary sociodemographic factors associated with suicide, as well as their relationship with changes in migration and living conditions in the municipalities of the federal entities with the highest incidence of mortality due to this specific cause.

Extended abstract

Describing topic

This study aims to analyze suicide mortality in Mexico while investigating its relationship with internal migration intensity and spatial distribution, as well as socioeconomic heterogeneity within the country. It underscores the critical importance of comprehending the intricate interplay of these three factors across different regions of Mexico. Notably, certain Mexican states exhibit high levels of poverty and structural conditions that significantly influence both internal migration patterns and individual well-being. In the specific context of suicide, migration has been identified in various regions as a contributing factor to this type of mortality. This is primarily due to the radical transformation in the daily lives of migrants, leading to a disruption of their social support networks and increased isolation. Furthermore,

migrant individuals often encounter adverse economic circumstances, low wages, discrimination, and restricted access to healthcare and social welfare services, all within diverse socioeconomic contexts that yield distinct demographic consequences.

Theoretical focus

The social nature of suicide becomes evident through the analysis of statistical records that capture the sociodemographic particulars of each case. These records, far from being mere population aggregates, reveal a social phenomenon characterized by regularities that emanate from the depths of society, as posited by Durkheim (1971). It is within the broader population that these regularities and individual variances converge, thus shaping each instance of suicide. Consequently, if suicide mortality is indeed a social phenomenon underpinned by social regularities, it is possible to identify the spatial and demographic factors associated with it.

Statistical records are a valuable resource for uncovering the patterns and fluctuations in suicide deaths. These variations are not always immediately apparent but provide insights into how sociodemographic processes, as identified within the statistical aggregates, manifest as individual-level regularities, as highlighted by Goldthorpe (2021).

Data

The analysis is conducted at the municipal level within the states that have recorded the highest incidence of suicide across three discrete periods, spanning from 2000 to 2020 with five-year intervals. This approach enables the examination of temporal changes across various geographic regions. In this context, we rely on national mortality data reported for the years 2000 to 2020. These data include variables such as gender, age, occupation, and education concerning specific causes of mortality. Additionally, population census data (INEGI, 2021), the social deprivation index (CONEVAL, 2020), and migration rates (CEPAL, 2000, 2010, 2020) at the municipal level are harnessed for the same time span.

Methods and Expected Findings

We first analyze the differences in suicide rates at the state level in Mexico, aiming to identify the states with the highest incidence. Then, we investigate the variables associated with mortality due to this cause. The study seeks to explain the relationship between suicide rates

in the municipalities within the states exhibiting the highest mortality incidence and the relation with the observed migration flows and levels of social deprivation at the municipal level. The overarching objective is to explore potential variations between these variables and, consequently, discern the factors linked to the mortality rates related to suicide.

A spatial autocorrelation analysis is executed employing 'Geoda 1.20.0.8' on the municipalities comprising the selected states to compute global and local Moran's I indices for those with the highest suicide rates in 2020. This analytical step aids in identifying and comprehending the potential spatial implications on the relationships between the variables of interest. In this regard, while the appropriate selection of spatial weighting matrices is one of the most complex issues in spatial statistics (Guillain & Le Gallo, 2010), a nearest neighbor matrix was chosen. This matrix implies that each spatial unit is connected to the same number of neighbors, regardless of their location, allowing for a comparative analysis of municipal conditions in the selected states.

Additionally, a binomial logistic regression analysis is performed using 'RStudio 1.4.1106' to investigate the potential relationship between suicide cases and sociodemographic variables of interest, migration flows, and social deprivation as factors associated with suicide mortality.

We expect to find a positive correlation will be found between migration flows and suicide incidence, particularly in young males and unmarried individuals, within municipalities characterized by lower levels of social deprivation across the country.

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