

Visualization of Method-Specific Suicide Mortality Data

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Abstract

The aim of this article is to examine method-specific suicide mortality data. Method-specific suicide trends vary across countries by time, age, and sex. Often the patterns of suicidal behaviour are determined by sociocultural accessibility of suicide methods and their corresponding associations are very complex. In this article a graphic software tool (Cirocs) is used to visualize tabulated method-specific mortality data counts. Created images allow capturing and displaying complex patterns.

Keywords: Age; Counts; Gases; Methods; Taiwan

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Introduction

In the publication by Lin and Lu, their authors studied suicide mortality trends by sex, age, and methods in Taiwan^[1]. Among various data and the results on suicide presented in the paper, they tabulated and reported method-specific suicide counts by sex and age groups. Four age groups were defined and used [15 - 24], [25 - 44], [45 - 64] and 65 and above. Data for counts were grouped by the following methods of committed suicide: Poisoning (poisoning by solid or liquid substances), Hanging (hanging, strangulation and suffocation), Gases (poisoning by other gases), Jumping (jumping/falling from high places), and Others. The Others included: poisoning by domestic gases, drowning, firearms, cutting and piercing, other and unspecified means, and late effect of injury^[1]. The authors defined suicide deaths as those coded E950 - E959 and E980 - E989^[2]. They reported suicide counts for combined and merged 3 years of suicide mortality data to minimize the effect of yearly fluctuations. The data for the following five year-groups were reported: 1991 - 1993, 1994 - 1996, 1997 - 1999, 2000 - 2002, and 2003 - 2005 (see Table 1 in Lin and Lu's work^[1]). Using five time periods, the authors were able to observe changes in suicidal behavior over time by used methods. They compared numerical values in the cells of Table 1 to make their conclusions. Their final conclusion was that suicide by means of charcoal-burning (Gases) and jumping from heights (Jumping) has recently become a serious public health problem in Taiwan.

In this short note we propose to apply the software tool called the Circos table viewer^[3]. This software tool is freely available and it can be easily used to visualize tabular data. The Circos table viewer realizes the Circos application^[4] to represent data tables into circular chord diagrams. We applied here the viewer for two mortality data sets. We considered suicide counts method-specific in Taiwan for the years 1991 - 1993 and 2003 - 2005, to observe changes in the patterns by time periods. We analyzed data for both sexes together. To be able to distinguish the results on the created images, we added the letter "F" for female data. Thus, for example: "25 - 44" is a male age group, "25 - 44 F" is a female age group.

Using the Circos table viewer we created two figures. The result is an image to represent circular chord connections between five defined age-groups (male and female) and the suicide methods. Figure 1 shows the results for the years 1991-1993. As we see the Gases method does not present among the listed suicide methods. The opposite is visible on Figure 2, which presents the data for the years 2003 - 2005. On this figure, the Gases method is identified among frequently used methods of suicide. The Gases method is present and starts to be dominant, mainly in the age group [25 - 44].

The presented results (Figure 1 and Figure 2) graphically emphasize the changes in the pattern of suicide methods in Taiwan for the considered time period 1991 - 1993 and 2003 - 2005.



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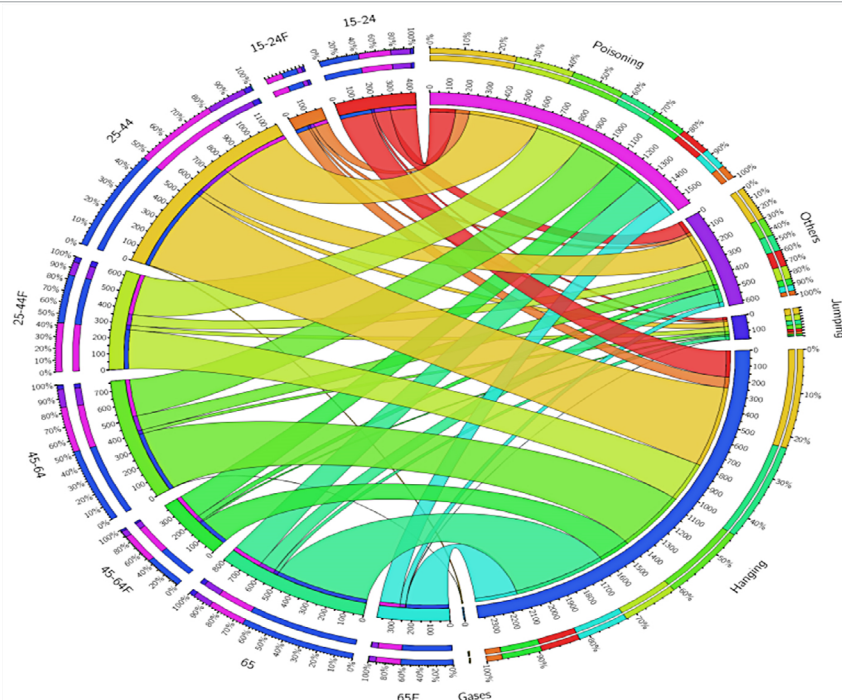


Figure 1: Method-specific suicide in Taiwan, 1991-1993, by age group and sex.

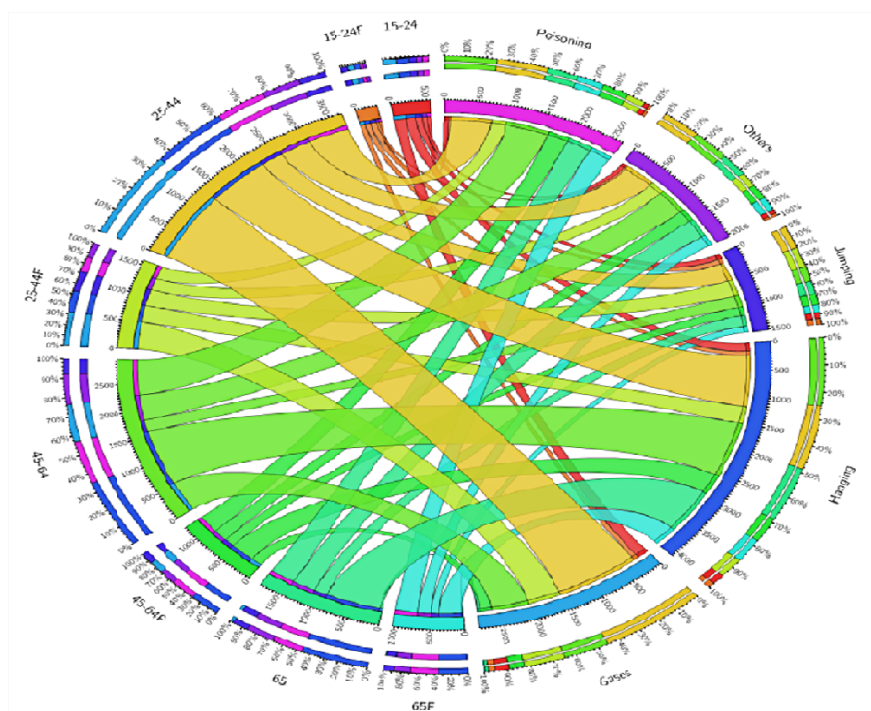


Figure 2: Method-specific suicide in Taiwan, 2003-2005, by age group and sex.

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