

A longitudinal comparison of age patterns and rates of suicide in Hong Kong, Taiwan and Japan and two Western countries



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ABSTRACT

Suicide data relating to 1979–2014 were obtained from three East Asian jurisdictions (Taiwan, Hong Kong, Japan) and two ‘Western’ countries (Australia, New Zealand). Rates and age patterns of suicide have changed markedly since 1979. Graphs of these patterns largely remained either upward-sloping, bimodal or flat (uniform) over the 36 years, male commonly differing from female, and East Asian patterns more like each other than those of the Western countries. Japan’s male middle-aged suicide rate reached a peak in 1999–2003, which, like increased rates among working age males in Hong Kong and Taiwan, has been attributed largely to consequences of Asian financial crises. Male to female ratios of suicide rates have remained higher in the Western countries, but late life suicide rates have decreased to varying extents in all five jurisdictions. Identifying reasons for differences between jurisdictions in their suicide rates and patterns at particular times, and over time, is likely to point to factors (period, cohort, psychosocial or cultural) that protect against or foster suicidal ideation. This avenue of research may assist in identifying ways of preventing suicide.

1. Introduction

Rates and age patterns of suicide differ between countries, between population groups in those countries, and over time. Observed distributions of suicides reflect complex interplays among potentially protective and permissive factors (Chen et al., 2012). These include traditional value and culture systems, community or religious attitudes concerning self-killing, availability and acceptability of particular methods of suicide, and customs that foster connectedness in times of economic and social stress.

There have been considerable changes in rates and patterns of suicide over recent decades. Analysis of how such changes in defined regions or populations are associated with socio-environmental factors has pointed to variation between countries in the range of circumstances that affect suicide rates. Recognising associations between changes or differences in suicide patterns and sociocultural environments, and relating these to varying period effects, may facilitate awareness of factors that increase suicidality.

2. Aim

The aim of the current study was to examine and compare changes over time in the suicide rates of representative nations in the Asia-Pacific region where suicide data have been collected reliably over a number of years. Chen et al. (2012) commented favourably on the accuracy of suicide statistics in six Asian jurisdictions, and from these we selected Japan, Hong Kong (HK) and Taiwan. We considered including Korea, being aware of dramatic recent changes in suicide rates in that country. However, the fact that the death classification system in Korea has been radically changed since 1999, resulting in a significant reduction of recorded accidental deaths and a coincident, comparably sized increase in suicide mortality data (Chan et al., 2015), led to non-inclusion of Korean data; we planned to compare data from 1979 onwards. We selected Australia and New Zealand (NZ) as representative of Western countries in the Asia-Pacific region, with reliable suicide statistics over many years. Suicide data from the United States (US), Canada, England and Wales, and Western Europe could also be considered as representative of Western nations, but space constraints caused us to limit the number of countries from which to display graphed data.

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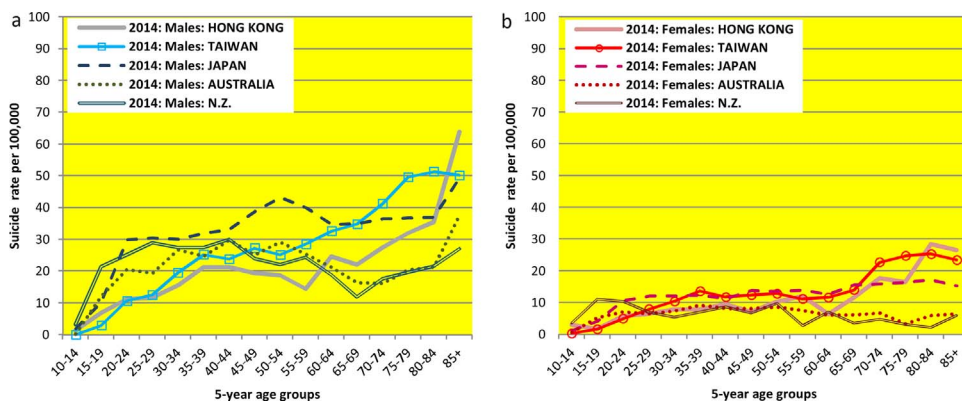


Fig. 1. (a & b): Age patterns of suicide in Taiwan, Hong Kong, Japan, Australia and New Zealand in 2014.

3. Method

Suicide data from 1979 to 2014 were provided by government agencies in Japan, HK, Taiwan, Australia and NZ. Population figures obtained in national census years were available, together with estimates of population numbers in non-census years, in each male and female 5-year age-group (10-14 years to 80-84), and 85+ years age-group. Suicide rates for each 5-year period were calculated by totalling the number of suicides during the 5 years and using the known or estimated population figure recorded for the middle of those 5 years to calculate the average annual suicide rate per 100 000. Where ten-year rates have been graphed, these are the averages of two consecutive 5-year suicide rates (e.g. 2004-08 plus 2009-13).

4. Results

The 2014 suicide rates in each male and female age-group (10-14 years to 85+ years) in these five jurisdictions were graphed (Fig. 1). Rates during 5-year periods between 1979 and 2013 (males and females calculated separately) are shown in the Supplementary Tables 1 – 5. Rather than display age-patterns for the seven 5-year periods we have chosen to graph suicide rates averaged over 10-year periods in Figs. 2–6, plus the 1999-2003 period (omitting female Australia and NZ graphs for that period, thus increasing clarity). The same scale is used for all graphs.

Table 1 lists peak rates of suicide (male and female) in the five jurisdictions over four different time periods. At times there were no clear peaks. Table 1 provides summary descriptions of the types of age patterns recorded by the graphs, applying (where appropriate) terms defined and labelled by Girard (1993) [upward-sloping, convex, downward-sloping and bimodal] and Da Veiga and Saraiva (2003) [uniform: cases where rates varied little across the adult age range]. In our study, most male age patterns in Japan, Australia and NZ over the four time periods were described as bimodal, whereas in Taiwan the male

patterns remained upward-sloping throughout the 35 years. In HK the patterns of suicide at age 25-59 years were almost flat from age 25 to 59 years and were upward-sloping in later life. To a large extent, the graphs show differing male and female patterns.

However, using descriptive labels obscures the considerable changes in rate observed at different times over the 35 years. Some of the changes, and contrasts between countries, are made obvious by the graphs (Figs. 2 to 6). Firstly, striking falls in male and female late life suicide rates during 1979-2013 occurred in all five jurisdictions, except that in HK the decrease in late life male suicide rates was small, and in Australia there was no change in the female rate. The suicide rates of males and females aged 65-84 years in NZ fell by more than half; the rate at 85+ years stayed the same (Fig. 6).

Although the Taiwan and Japan graphs are suggestive of small peaks in suicide rates of males in their twenties in the 1980s, rate increases among Australian and NZ young men in the 1990s were larger (Figs. 5a and 6a). In contrast to the two Western countries, graphs of Japan’s male suicide rate have continuously demonstrated peaks at age 50-59, being highest in 1999-2003. A considerably increased rate among males aged 25-59 years was also observed in Hong Kong (highest in 1999-2003) and Taiwan (higher in 2004-2013). Australia’s early peak has moved in the last two decades (attributable to a cohort effect) from the twenties to the forties (Fig. 5a).

Table 1 and inspection of the graphs of male suicide rates between 1979 and 2014 reveals similarity between age patterns of suicide (and changes thereof, over the years) in the three East Asian jurisdictions. There has also been similarity between Australia and NZ. However, there have been marked differences between the Asian and Western male patterns. Graphs of Australian and NZ suicide rates have depicted peaks in young adulthood and late old age, with lower rates across the intervening age-groups. In East Asia, rates have progressively risen with age (but with a middle age peak in Japan), though the late life peaks in recent years have been lower than in the 1980s.

There were similarities in the patterns of late life suicide rates of

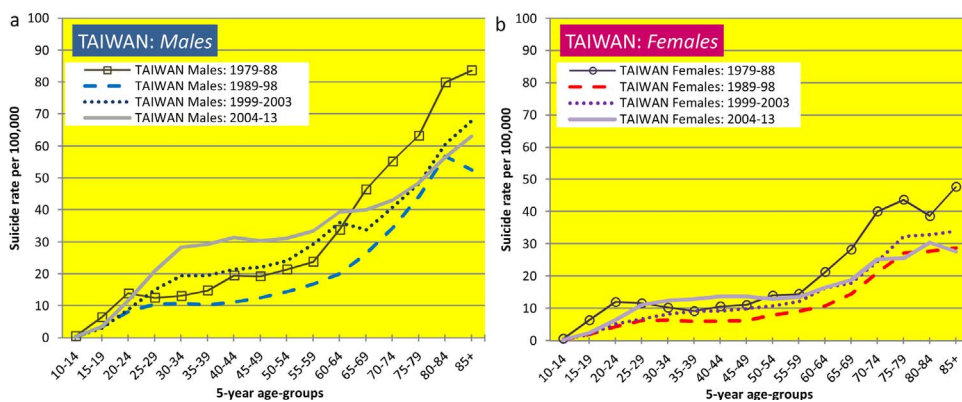


Fig. 2. (a & b): Age patterns of male and female suicide in Taiwan between 1979-88 and 2004-13.

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