Suicide Sex Ratios After the Inception of Charcoal-Burning Suicide in Taiwan and Hong Kong

To the Editor: Suicide rates in males are generally higher than in females in most parts of the world.[1] However, this gender gap is narrower in some Asian countries, where suicide among females seems to be more culturally acceptable.[2] Other factors such as the availability of lethal method of suicide, lower women's status, and inadequate treatment of mental illness are other possible explanations for the narrower gender gap in Asian countries.[2–4] Recently, burning barbecue charcoal in a closed space has become a dominant suicide method in Taiwan and Hong Kong; the method has changed the pattern of suicide rates in these 2 places in the last decade.[5] The aim of the current study was to explore the impact of charcoal-burning suicide on patterns of the suicide sex ratio in Taiwan and Hong Kong.

Method. The suicide mortality data from Taiwan and Hong Kong were collected from the Department of Health of the Executive Yuan of Taiwan and Corner's Court of Hong Kong, respectively, for the years 1994–2008. Suicide was defined as deaths coded under E950-959 (suicide and self-inflicted injury) and E980-989 (undetermined intent) of the *International Classification of Diseases* (*ICD*), 9th revision. Deaths of undetermined intent were included because many suicide deaths were hidden under this category.[6]

The code E952/E982 (intentional self-poisoning by other gases and vapors) was used for charcoal-burning suicide. Other sources

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Table 1. Male and Female Suicide Rates (per 100,000 population) and Male-to-Female Suicide Sex Ratio in Hong Kong and Taiwan, 1994–2008

	Hong Kong						Taiwan					
	Overall		Charcoal Burning		Non–Charcoal Burning		Overall		Charcoal Burning		Non–Charcoal Burning	
Time Period	Sex Ratio	Male/ Female	Sex Ratio[a]	Male/ Female	Sex Ratio	Male/ Female	Sex Ratio	Male/ Female	Sex Ratio[a]	Male/ Female	Sex Ratio	Male/ Female
1994–1996	1.5	14.9/9.8	...	0.0/0.0	1.5	14.9/9.8	1.9	17.8/9.3	...	0.1/0.0	1.9	17.7/9.2
1997–1999	1.7	16.3/9.4	...	1.2/0.5	1.7	15.1/9.0	1.9	22.1/11.6	...	0.4/0.1	1.9	21.7/11.5
2000–2002	1.8	19.7/10.8	2.1	4.8/2.3	1.8	14.8/8.8	2.1	27.0/13.2	3.1	3.1/1.0	2.0	23.9/12.2
2003–2005	1.9	21.6/11.4	2.7	5.5/2.1	1.7	16.0/9.4	2.1	32.6/15.5	2.6	7.5/2.8	2.0	25.1/12.6
2006–2008	1.8	17.6/9.9	2.2	3.2/1.5	1.7	14.4/8.4	2.2	34.5/15.9	2.7	10.5/3.9	2.0	24.0/12.0

[a]Sex ratio for charcoal burning for the period 1994–1999 was not presented since the practice was not frequent during that time.

of carbon monoxide poisoning under this code were too few to have significant impact.[7] Fitted linear regression models tested for the slope of male-to-female sex ratio of suicides, with calendar year as the independent variable.

Results. Calculating the mean sex-specific suicide rates and male-to-female ratios in consecutive 3-year periods in both places showed increasing trends, with slope estimates of 0.024 for Hong Kong (95% confidence interval [CI]: 0.001 to 0.047, $P = .045$) and 0.023 for Taiwan (95% CI = 0.012 to 0.034, $P = .001$). The male-to-female ratio for charcoal-burning suicide was greater than that of the overall male-to-female ratio for suicide (Table 1). Compared to Hong Kong, Taiwan experienced a more noticeable increase in gender ratio.

Charcoal-burning suicide had high fatality ratio[8] and male preponderance compared to other poisoning suicide deaths. Examining the leading suicide methods, the sex ratio increased slightly for hanging suicide in Taiwan (from 2.16 in 1994–1996 to 2.57 in 2006–2008) and for jumping suicide in Hong Kong (from 1.39 in 1994–1996 to 1.56 in 2006–2008).

The advent of charcoal-burning suicide has widened the male-to-female suicide gap in both Taiwan and Hong Kong, echoing previous reports that gender differences on the choice of suicide methods is an important contributor to gender differences in suicide rates.[3] Although not all deaths classified under E952/E982 are charcoal-burning suicide, the number of other sources of carbon monoxide poisoning is small.[5,7]

Charcoal-burning suicide has equal gender availability and characteristics of a "feminine method of suicide" (ie, peaceful, nonviolent, and not disfiguring),[9] challenging traditional stereotypes regarding gender-specific method preference. It has also been widely portrayed by mass media as an effective escape from financial predicament, thereby attracting economically active middle-aged men with financial debt.[5] The disproportionate increase of such suicides in men highlights the importance of the mass media in shaping the cultural meaning of a suicide method. It is possible that the method itself attracts a new cohort of individuals who will not commit suicide if the method is not available, as the profiles of death among those using charcoal burning are very different from those who used other methods. Another possibility is the technical aspect—males may be more familiar with the basic skills required.

Lastly, the case of charcoal-burning suicide hints that the gender-specific connotation of suicide methods varies over time and across different cultural contexts. Closer monitoring and surveillance are required to assess its impact more effectively.

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