



Brief report: Sex differences in suicide rates and suicide methods among adolescents in South Korea, Japan, Finland, and the US



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ABSTRACT

Sex differences in suicide rates and suicide methods was compared among adolescents in South Korea, Japan, Finland, and the United States. This study analyzed suicide rates and suicide methods of adolescents aged 15–19 years in four countries, using the World Health Organization mortality database. Among both male and female adolescents, the most common method of suicide was jumping from heights in South Korea and hanging in Japan. In Finland, jumping in front of moving objects and firearms were frequently used by males, but not by females. In the United States, males were more likely to use firearms, and females were more likely to use poison. The male to female ratio of suicide rates was higher in the United States (3.8) and Finland (3.6) than in Korea (1.3) and Japan (1.9). Sex differences in suicide methods may contribute to differences in the suicide rates among males and female adolescents in different countries.

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Although suicide mortality is typically higher in males than in females, the sex ratio (male/female) differs greatly among countries. In Western countries, it is 3–4:1, whereas it is usually less than 2:1 in Eastern countries (Yip, 1998). The sex ratio of suicides was recently reported to be about 1:1 in Korean adolescents and young adults (Ahn, Park, Ha, Choi, & Hong, 2012). This low sex ratio in the suicide rates among Korean youth is very unique in comparison with that in other countries and other age groups. The sex difference in suicide rates may be higher in communities where male and females are expected to engage in different suicidal behaviors (Canetto & Sakinofsky, 1998). The lethality of the various suicide methods is an important determinant that distinguishes attempted from completed suicides (Spicer & Miller, 2000). Therefore, sex differences in the suicide methods in each country provide insights into the respective differences in male to female suicide ratios.

This study compared sex differences in suicide rates and suicide methods in adolescents in South Korea, Japan, Finland, and the United States (US). South Korea and Japan are selected because they are two Eastern countries where the suicide rates are highest and the sex ratio of suicides is relatively low (less than 2:1) (WHO, 2013). Finland is selected because it is one of the countries where the sex-suicide gap is highest (about 3:1) and national suicide statistics are reliable (WHO, 2013). The US, where guns are more available, is selected to examine the effect of use of firearms, one of the most lethal methods, on suicide rates. It was hypothesized that sex differences in suicide methods would be more prominent in adolescents in the US and Finland, where sex differences in suicide rates are higher, than in adolescents in South Korea and Japan.

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Methods

Data on suicide rates and suicide methods were obtained from the World Health Organization (WHO) mortality database (WHO, 2013). The most recent data were from 2011 for South Korea, Japan, and Finland, and 2010 for the US. The numbers of suicides of adolescents aged 15–19 years were 317 among 3,544,699 population in South Korea, 509 among 6,009,000 population in Japan, 43 among 329,926 population in Finland, and 1658 among 2,1086,000 population in the US. Suicide methods were classified into six categories according to the ICD-10 codes: poisoning (X60–X69), hanging (X70), firearms (X72–74), jumping from a high place (X80), jumping in front of moving objects (X81–X82), and others (X71, X75–X79, X83–X84). The study was approved by the institutional review board (IRB) for human subjects at the Seoul National University College of Medicine.

Results

Suicide rates according to sex and countries

Suicide rates according to sex and countries are illustrated in Fig. 1. For all four countries, the suicide rates of males were higher than those of females. The suicide rates of males were higher than those of females in all countries. The sex ratio (male: female) of suicide rates was 3.8 for the US, 3.6 for Finland, 1.9 for Japan, and 1.3 for South Korea.

Comparison of suicide methods across countries

Suicide methods according to sex and country are presented in Fig. 2. Among male adolescents, jumping from high places was the most common suicide method in South Korea (45.0%, 95% CI 38.0–52.1), but it was a relatively uncommon in other countries, with rates ranging from 2.7% (95% CI 1.8–3.5) to 11.8% (95% CI 0.9–22.6). Firearms were the most common suicide method among male adolescents in the US (45.5%, 95% CI 42.8–48.1), and this was also a relatively common method among males in Finland (23.5%, 95% CI 9.3–37.8). However, this method was seldom used by Korean males, and it was not used at all by Japanese males. Jumping in front of moving objects was the most common suicide method among male adolescents in Finland (29.4%, 95% CI 14.1–44.7), but it was relatively uncommon in other countries, with rates ranging from 1.6 (95% CI 0–3.3) to 7.3% (95% CI 4.6–10.1). Suicide by hanging was more common among male adolescents in Japan (67.0%, 95% CI 62.0–71.9) than in other countries, although this method was relatively common in all four countries. Among female adolescents, the most common suicide method was jumping from high places in South Korea (61.1%, 95% CI 52.6–69.6), whereas it was hanging in the other three countries. Firearms were the second most common suicide method among female adolescents in the US (19.9%, 95% CI 15.7–24.2), but this method was not used by females in South Korea, Japan, or Finland.

Comparison of suicide methods by sex

Among both male and female adolescents, the most common method of suicide was jumping from heights in South Korea and hanging in Japan. In Finland, jumping in front of moving objects and firearms were frequently used by males but not by females. In the US, males were more likely to use firearms, and females were more likely to use poison (Fig. 2).

Discussion

The male-to-female suicide ratio was higher in the US and Finland, where sex differences in suicide methods was more prominent, than in Korea and Japan. The prevalence of lethal methods of suicide may be reflected in the suicide rates in each country and in men versus women.

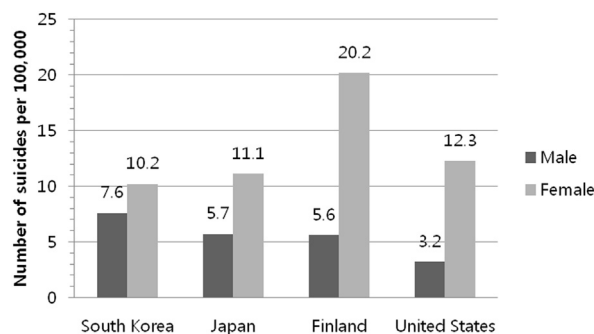


Fig. 1. Suicide rates among male and female adolescents in the four studied countries.

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