



A Review of the Various Suicide Methods Used Around the World

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Abstract

Around 800000 to 1 million people die by suicide annually, making suicide the 10th leading cause of death worldwide. Suicide rates are higher among men than women, and the probability of suicide is 3 to 4 times higher for men than for women. Non-lethal suicide is more common in young people and women. The type of suicide seen in different countries depends on the culture, economic, and social conditions in the respective country. Also, differences in types of suicide are partly due to the availability of various methods. In recent years, the percentage of suicides has risen in all countries. Surveys show that the most prominent methods of suicide in most countries in the world are hanging and poisoning. The most deadly type of suicide is by gun. The most unsuccessful suicide attempts are overdoses of medication. Knowing about the available suicide methods is important.

Keywords: Suicide, Type of Suicide, Countries

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Introduction

One of the most important factors that should be considered is the evaluation procedures of suicide. Some suicide methods are more common in certain countries or societies. The types of suicide attempted in different countries depend on the cultural, economic, and social conditions of the respective country.¹ Depending on the availability and knowledge of suicide methods, individuals use low-risk to extremely deadly methods. There are many common and even some unusual ways to attempt suicide. Some patients occasionally use two or more methods. This study aimed to provide a comprehensive list of suicide methods used around the world.

Types of suicide include hanging, drug poisoning, pesticide poisoning, suicide by gun, jumping from a height, self-drowning, self-immolation, suicide by electrocution, cutting veins, standing in front of a train, car crash, and intentional starvation.²

Asian countries account for 60% of the world's suicides.² The most common types of suicide in different countries are: Bahrain: hanging and poisoning;

China: poisoning with agricultural chemicals;

Hong Kong: jumping from a height;

India: poisoning;

Japan, Thailand, and Turkey: hanging;

The United States: suicide by gun;

Canada: drug poisoning;

Argentine and Switzerland: suicide by gun; and

Other European countries: hanging.¹⁻¹⁰

The number of suicides in Canada decreased among males from 1980 until 2008, but increased among females.⁵

The most common type of suicide among males is hanging and among women is poisoning.^{7,9} The most common types of suicide in developed and developing countries are drug poisoning among women and more violent types among men like hanging and violent types like self-immolation and hanging among females, respectively.⁶ The most deadly type of suicide is by gun.⁹ The percentage of unsuccessful suicides is about 20 times higher than that of successful suicides. The percentage of suicide has risen throughout the world.¹¹ In most countries, the most common types of suicide are

poisoning and hanging.^{3,10} The risk of suicide is higher among men than women. Men use ways like hanging and suicide by gun, but women use various suicide methods, like poisoning, suicide by gun, carbon monoxide poisoning, and hanging.¹²

Autopsies have shown that the most common method of suicide is hanging.¹³ Self-immolation is the most deadly kind of suicide.¹⁴ Suicide is the third cause of death in people between 15-19 years of age. The suicide rate is higher among people with mental illness than others. The biggest risk factor for suicide is previous suicide attempts.¹²

Risk factors for suicide: The risk factors for suicide include previous attempts at suicide, gender (male), age (the highest risk is among people aged 40-45 years), alcohol use, drug abuse, and living alone.¹⁵

Rare ways of suicide: Some unusual methods of suicide are:

- Suicide by eating plaster dissolved in water¹⁵;
- Suicide by consuming cyanide;
- Suicide by injecting gasoline under the skin¹⁶;
- Quilting needle in the occipital lobe or medulla oblongata¹⁵;
- Suicide by consuming formalin;
- Intravenous injection of potassium.¹⁵

Variety of Suicide Plans

In most countries, the most common method of suicide is hanging, and most suicide victims are between the ages of 21 and 30 years. Men use this method more than women.¹³ Most suicide victims had an affective disorder (about 50%), and some of them had schizophrenia (13%). About 50% of people who used this type of suicide had previously attempted suicide. About 2.3% of suicide victims hung themselves at home, and the others hung themselves in public places. In 49% of cases, victims used a rope to commit suicide, and in 13%, 11%, and 6% of cases, a belt, an electric cable, and a dog collar were used, respectively.¹³

In 1.3% of cases, a roof was the location of the hanging, and a tree was used in 15% of hanging suicides. For suicides occurring in prisons, most victims used windows or cell bars as the place for hanging the rope; in fewer cases a toilet door was used. Nylon rope was the most commonly used type of rope used in hangings (63%), followed by jute rope (Indian Hemp) used in 6% and saris used in 5% of cases. Other tools used were cotton rope, electric cables, water pipes, clothes, and belts.¹⁷

Three types of rope have been used in hangings: less than 1 cm in width (narrow), between 1-2 cm in width (mid-size), and more than 2 cm in width (wide).

- Narrow ropes were used in the most cases (74%), followed by mid-size ropes (9.7%), and wide ropes (16.3%).
- The number of rings that were hung around the necks in most cases was one (72.4%) and more than one (27.6%).

Suicide by poison is more prominent in women than in men and is more commonly used by people in the age range of 16-30. Most drug poisonings are caused by antidepressants and sedatives. Poisoning by insecticide is more common in village areas and among young people. Women use poisoning as a suicide method 3 times more than others. They used sedatives

like acetaminophen in 52% of cases.¹⁸

Among the people who used poisoning as their suicide method, 14% smoked, 11% were addicted to opium, 2% used alcohol, 51% suffered from a chronic illness, and the others had a special illness. Most suicide victims who had a chronic illness suffered from HIV.¹⁷

In 58% of suicide attempts using drugs, 23.2% used opioids, 4.6% used psychiatric drugs, 16% used insecticide poisons, and 26% used other types. Of these suicide attempt cases, 7% died, 16% survived with side effects, and 77% survived without side effects.¹⁷

Suicide by gun is more common among men. The highest percentage of suicide attempts is by gun. The person attempting suicide by gun often points the gun to the head, inside the mouth, under the chin, or at the chest. Unsuccessful suicide attempts using this method may lead to chronic severe pain, reduced cognitive abilities, and/or reduced motor function in the victim.¹⁸

Self-immolation is a common suicide method used by people in the age range of 20-40 years. This type of suicide is more common among women. Self-immolation is seen more in developing countries, like India, Sri Lanka, Iran and Afghanistan. Iran is one of the countries in which the number of suicide attempts using self-immolation is high. Among people attempting this type of suicide, 71% have an average of 29 years. Kurdish people use this type of suicide more frequently than others.¹⁹

Europeans also use self-immolation, but much less frequently. Self-immolation in European countries is seen more among middle-aged men. People with a history of mental illness or drug abuse use this type of suicide more frequently than others. In some religions (like Buddhism) suicide by fire is known as a form of protest against a politic condition. Self-immolation was required to be performed by a widow at her husband's funeral, but that practice has now been eradicated.¹⁹

Self-immolation is more in young married women who are so primary has to be one of the most basic mental health policies in areas that people use this way much. Women use self-immolation 3 times more than men. Self-immolation is the most violent type of suicide.¹⁹

Self-immolation in developing countries is the rarest type of suicide, but it is seen more in countries like Africa, Egypt, India, and Vietnam. It is related to religious beliefs in these countries. Self-immolation accounts for 40% of suicides in India and 25%-40% of suicides in Iran. The most common method of suicide is hanging, and the second is self-immolation. White oil is the most popular instrument for suicide. Overall, 76% of self-immolation attempts end in death. The prevalence of people who commit suicide in Afghanistan is 79%.¹⁹

Suicide by jumping is responsible for 20%-50% of suicide attempts. The average age of people attempting suicide by jumping from a height is 38 years. Most victims jump from a height of 6-12 m.¹⁹

One research revealed that people who commit suicide

by jumping from a height have a history of mental illness; schizophrenia was the most common mental illness among suicide victims, followed by major depressive disorder (MDD).²⁰ Drowning is a more common suicide method among men.²¹ Men drown themselves more in rivers and pools, but women attempt to drown themselves in bathrooms. Most drowning suicides happen in sweet water.^{21,22}

Conclusion

There are substantial differences in suicide methods throughout the world. These differences reflect the interplay of different determinants of suicidal behavior.²³ Today, the frequency of suicide is increasing in different countries. In most countries, the most popular methods of suicide are poisoning and hanging. Poisoning is more popular among women; men use more violent ways, like hanging. Suicide attempts are unsuccessful 20 times more frequently than attempts that end in death. Women as a group more frequently attempt suicide rather than actually commit it, whereas men were more likely to complete suicides. Thus, women are the attempters and survivors of suicide attempts. Suicide mortality is significantly higher among adults than minors. In South Korea between the years 2000 and 2005, the most common suicide method among women was poisoning, like in other countries, but between 2005 and 2011, the most common suicide method among women was hanging.²³ Suicide during pregnancy is more important because of the prevalence of stress and mental illness in pregnant women. The people who had more than 35 have a higher risk of suicide.²⁴ The availability of a device in an area can cause more suicide with that device in that area. In parts of Iran where agriculture is common, for instance Rafsanjan where the main product is pistachio, suicide by organophosphates, like mitak or amitraz, is more common. Elderly people commit suicide because of loneliness and depression. In places where pharmacies that give drugs without a prescription, suicide by drugs is more common. In some countries where killing devices are easily available to people, suicide by knife or gun is more common. In people with psychological conditions, suicide by medicines which the patients had been using in the past is more common. The most common suicide method among people in villages is poisoning with pesticides. Hanging is the main suicide method when no other major method is available. Suicide by pesticide poisoning has been recognized as a major public health problem in developing Asian countries. Studies have shown that suicide by fire is most popular in Iran among the countries of the world.²⁴

Authors' Contributions

All authors contributed equally to this study.

Conflict of Interest Disclosures

The authors declare they have no conflicts of interest.

Ethical Approval

Not applicable.

References

- Ajdacic-Gross V, Weiss MG, Ring M, et al. Methods of suicide: international suicide patterns derived from the WHO mortality database. *Bull World Health Organ.* 2008;86(9):726-732.
- Wu KC, Chen YY, Yip PS. Suicide methods in Asia: implications in suicide prevention. *Int J Environ Res Public Health.* 2012;9(4):1135-1158. doi:10.3390/ijerph9041135.
- Varnik A, Kolves K, van der Feltz-Cornelis CM, et al. Suicide methods in Europe: a gender-specific analysis of countries participating in the "European Alliance Against Depression". *J Epidemiol Community Health.* 2008;62(6):545-551. doi:10.1136/jech.2007.065391.
- Kumar S, Verma AK, Bhattacharya S, Rathore S. Trends in rates and methods of suicide in India. *Egypt J Forensic Sci.* 2013;3(3):75-80. doi:10.1016/j.ejfs.2013.04.003.
- Skinner R, McFaull S. Suicide among children and adolescents in Canada: trends and sex differences, 1980-2008. *CMAJ.* 2012;184(9):1029-1034. doi:10.1503/cmaj.111867
- Morovatdar N, Moradi Lakeh M, Malakouti SK, Nojomi M. Frequency of methods of suicide in Eastern Mediterranean Region (EMRO) of WHO: a systematic review. *Iranian Journal Psychiatry Clinical Psychology.* 2013;18(4):253-260.
- Byard RW, Klitte A, Gilbert JD. Changing patterns of female suicide: 1986-2000. *J Clin Forensic Med.* 2004;11(3):123-128. doi:10.1016/j.jcfm.2003.12.002.
- Cash SJ, Bridge JA. Epidemiology of youth suicide and suicidal behavior. *Curr Opin Pediatr.* 2009;21(5):613-619. doi:10.1097/MOP.0b013e32833063e1.
- Boeninger DK, Masyn KE, Feldman BJ, Conger RD. Sex differences in developmental trends of suicide ideation, plans, and attempts among European American adolescents. *Suicide Life Threat Behav.* 2010;40(5):451-464. doi:10.1521/suli.2010.40.5.451.
- Sumarokov YA, Brenn T, Kudryavtsev AV, Nilssen O. Variations in suicide method and in suicide occurrence by season and day of the week in Russia and the Nenets Autonomous Okrug, Northwestern Russia: a retrospective population-based mortality study. *BMC Psychiatry.* 2015;15(1):1-9. doi:10.1186/s12888-015-0601-z.
- Goldman-Mellor SJ, Caspi A, Harrington H, et al. Suicide attempt in young people: a signal for long-term health care and social needs. *JAMA Psychiatry.* 2014;71(2):119-127. doi:10.1001/jamapsychiatry.2013.2803.
- Murphy GE. Why women are less likely than men to commit suicide. *Compr Psychiatry.* 1998;39(4):165-175.
- Ziauddin MG, Kamesh A. Retrospective Study of Postmortem Cases of 'Hanging - A Method of Suicide. *NHL J Med Sci.* 2013;2(2):48-50.
- Shenassa ED, Catlin SN, Buka SL. Lethality of firearms relative to other suicide methods: a population based study. *J Epidemiol Community Health.* 2003;57(2):120-124.
- Cheng AT, Chen TH, Chen CC, Jenkins R. Psychosocial and psychiatric risk factors for suicide. *Br J Psychiatry.* 2000;177(4):360-5.
- Owliae H, Bidaki R. Intra muscular gasoline injection - a rare plan for suicide. *Int J Clin Med Imaging.* 2015;2(1):1000273. doi:10.4172/2376-0249.1000273.
- Dastgiri S, Kalankesh LR, Pourafkary N. Epidemiology of self-immolation in the north west of Iran. *Eur J Gen Med.* 2005;2(1):14-19.
- Lewiecki EM, Miller SA. Suicide, guns, and public policy. *Am J Public Health.* 2013;103(1):27-31. doi:10.2105/ajph.2012.300964.
- Gheslaghi F, Jafar Salehi M. Suicide attempts by self-poisoning in elderly. *J Res Med Sci.* 2012;17(2):S272-S275.
- Katz K, Gonen N, Goldberg I, Mizrahi J, Radwan M, Yosipovitch Z. Injuries in attempted suicide by jumping from a height. *Injury.* 1988;19(6):371-374.
- Byard RW, Houldsworth G, James RA, Gilbert JD. Characteristic

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- features of suicidal drownings: a 20-year study. *Am J Forensic Med Pathol.* 2001;22(2):134-138. doi:[10.1097/0000433-200106000-00005](https://doi.org/10.1097/0000433-200106000-00005).
22. Haw C, Hawton K. Suicide and Self-Harm by Drowning: A Review of the Literature. *Arch Suicide Res.* 2016;20(2):95-112. doi:[10.1080/13811118.2015.1025120](https://doi.org/10.1080/13811118.2015.1025120).
23. Park S, Ahn MH, Lee A, Hong JP. Associations between changes in the pattern of suicide methods and rates in Korea, the US, and Finland. *Int J Ment Health Syst.* 2014;8:22. doi:[10.1186/1752-4458-8-22](https://doi.org/10.1186/1752-4458-8-22).
24. Asadpoor M, Bidaki R, Mahmoodi H, et al. Frequency Suicide Ideation and Attempt among Rafsanjan Pregnant Women in 2012. *ARPN J Sci Technol.* 2013;3(12):1174-1181.