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Review Article



Suicidal Attempts by Unusual Means and Methods: A Brief Review

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Abstract

Background: When a method is unusual, the intention is very strong and then prevention becomes a big challenge; although, suicide is a preventable public health problem.

Objectives: The author aimed to look into unusual methods of suicidal attempts so that they can be considered in the formulation of prevention strategies.

Methods: A search was done in PubMed, PubMed Central, Google, Google Scholar, and BanglaJOL with specific searching key words between 2000 and 2017. Eventually, 23 articles were selected purposively for review.

Results: Nine suicide cases were reported as unusual poisoning, eight attempts were by violent methods, four by stabbing, and another four by unusual asphyxia. The mean age of the victims was 39.96 years, ranging from 17 to 80 years old, 68% being male. A total of 18 (72%) respondents died by the act, while 28% were saved from fatal attempts. Of the victims, 36% were found to have mental disorders, i.e. 28% had depression, 4% had schizophrenia, and 4% had bipolar 1 disorder. Seven cases had notable risk factors and two had a history of previous attempts.

Conclusions: Adult males are more prone to use unusual methods. Males used violent methods more than females, whereas females used more unusual poisoning methods. Asian and south Asians used more poisoning methods than those from other parts of the world.

Keywords: Unusual Suicide, Unusual Mode, Unusual Method

1. Background

Suicide is a preventable public health problem across the globe; however, it is still underattended by stakeholders (1-3). Suicide kills nearly 1 million people globally and is one of the three leading causes of death (1). If the current trend continues, it will kill approximately 1.53 million people in 2020, as stated by the World Health Organization (WHO) (1-4). Therefore, WHO focuses on suicide prevention and has called on countries to devise national suicide prevention strategies (1-4). Means restriction is one of the few promising strategies of suicide prevention, which showed effectiveness in declining the rate of suicide (5-8). It ranges from complete restriction of lethal methods to the promotion of educational and social interventions to make apart lethal means from risky persons (6-8). The choice of method depends on availability, accessibility, and perceived lethality of the method, intensity of intent to die, and other related socio-cultural factors (1, 9, 10). When intention is severe, means substitution can eventually happen (6-8). Unusual to very unusual means or methods have been used when intention to die is severe (6, 10). Uncommon methods with strong intention for suicide turn the suicides unpreventable (9,10). The author aimed to review the reported suicide attempts with uncommon methods so that suicides by unusual modes will be paid adequate attention in suicide prevention.

2. Methods

Articles were searched in PubMed, PubMed Central, Google, Google Scholar, and BanglaJOL with key search words (unusual suicide, unusual mode of suicide, unusual methods of suicide, uncommon methods of suicide) between 2000 and 2017. Articles in the English language and articles focusing the suicide methods were considered as inclusion criteria. Unusual aspects of suicide other than methods, such as unusual suicidal notes, articles on topics other than suicidal topics, such as accidental death were excluded from the review. All studies identified through the search strategy were assessed by their titles and abstracts to help ascertain their suitability against the inclusion and exclusion criteria. If it was not clear from the arti-

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cle title or abstract whether they met the inclusion criteria, a full version of the text was then acquired. Next, screening was conducted and exclusion of duplicate articles was done. After considering the inclusion and exclusion criteria, eventually, 23 articles were selected for the current review.

3. Results

The list of articles is presented in Table 1.

Table 2 reveals the demographic variables and risk factor distributions. The mean age was 39.96 years, ranging from 17 to 80 years, with 68% (17) being male. A total of 72% (18) of the respondents died by the act, 28% had a nonfatal attempt; 36% were found to have mental disorders, where among them, 28% had depression, 4% had schizophrenia, and 4% had bipolar 1 disorder (Table 2). Seven cases had notable risk factors and two had a previous attempt. Nine cases were reported as poisoning, eight as violent attempts, four as stabbing, and four as asphyxia.

Figure 1 reveals the distributions of gender and unusual methods. Males chose more violent methods and females chose unusual poisoning patterns.

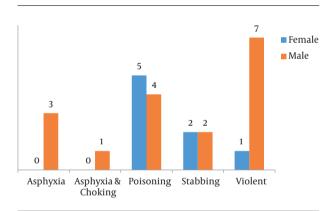


Figure 1. Cross-tabulation with gender and mode

3.1. Unusual Asphyxia

In Japan, a very uncommon suicide was reported by asphyxia of a 52-year-old man who was financially burdened (26). It was a suicide by a combination of suffocation by adherent tape wrapped around the head to cover the airway and ligature strangulation by an electrical cord (26). In Italy, a 35-year-old man was found dead at home with his mouth containing a tube linked to the domestic methane gas system originating from the wall, which was sealed with packing tape (20). In Serbia, a 40-year-old prisoner died by suicide by a combination of asphyxia and choking (21).

3.2. Unusual Poisoning

Suicide by intravenous kerosene was reported in Bangladesh, India (10, 12, 19). A 30-year-old female physician injected kerosene into her own vein, which is quite unusual. The lady had no previous history of suicide attempts or even intentions (10). In 2016, a suicide attempt of a 17-year-old boy with subcutaneous injection of gasoline was reported in Iran (13). The boy had cluster B personality traits and had a history of multiple suicide attempts. Suicide of a 22-year-old painter who was suffering from depression, intravenously injected 2 cc copper sulfate was reported in India (30). In 2015, Behera et al. (17), again reported the suicide of a 30-year-old married female physician who used Insulin Lispro with the help of an intravenous cannula in India. The lady was reportedly found to be depressed before the suicide. Senthilkumaran et al. (23), reported a suicide attempt of a 35-year-old male who introduced parathion (organophosphorus compound) rectally. A very uncommon suicide attempt was reported for a 53year-old female bipolar patient who injected paint thinner into the dorsum of her hand (25).

3.3. Suicide by Violent Methods

In France, suicide via chainsaw of a 32-year-old female engineer who was suffering from schizophrenia was found (29). Suicide of a cobbler by violent stabbing of his own chest was reported in India (32), suicide by power or electricity of a 30-year-old single male carpenter was reported in Tunisia (18), a 48-year-old female's suicide attempt by stabbing a kitchen knife in her throat was reported in Poland (15), and suicide attempt by stabbing with a kitchen knife was also reported (16, 27). Suicide by cutting of the neck with a razor blade was found in a 29-year-old unemployed, depressed man in India (31) and Schyma et al. (21), reported suicide by head explosion via an explosive. The 57-year-old man was an electrician and had no previous history of any physical or mental disorders. Suicide by violent head impalement was found in an 80-year-old man with pancreatic cancer and depression (22). Salem et al. (28), reported in Romania the suicide of a 76-year-old male who drilled his own chest using a drill borer. When two or more methods are applied either simultaneously or one after another in a suicide, it is called complex suicide (11, 14, 33). Complex suicides were reported in Turkey (11), Tunisia (14), and Romania (28).

4. Discussion

The choice of method for suicide depends on the availability and accessibility of the method; the victim's knowledge of the lethality of the method, age, sex, ethnicity,

SL.	Year	Author	Mode	Method	Country	Highlights	
1	2018	Arafat (10)	Poisoning	Kerosene IV	Bangladesh	Case report of suicide by IV kerosene	
2	2017	Zengin Eroglu et al. (11)	Asphyxia	Hanging	Turkey	Unplanned complex suicide	
3	2016	Hasan et al. (12)	Poisoning	Kerosene IV	Bangladesh	Suicide attempt using IV kerosene	
4	2016	Bidaki et al. (13)	Poisoning	Gasoline SC	Iran	Suicide attempt by SC Gasoline	
5	2016	Zribi et al. (14)	Poisoning	Para phenylene diamine	Tunisia	Combination of complex suicide	
6	2016	Misiak et al. (15)	Violent	Stabbing	Poland	Suicidal attempt by stabbing	
7	2016	Rishi et al. (16)	Violent	Stabbing	USA	Suicide attempt with a kitchen knife	
8	2015	Behera et al. (17)	Insulin	IV cannula	India	Suicide by IV insulin	
9	2015	Zribi et al. (18)	Violent	Electric saw	Tunisia	Suicide by electric saw	
10	2013	Jayaprasad & Metikurke (19)	Poisoning	Kerosene IV	India	Suicidal attempt using IV kerosene	
11	2013	Rossi et al. (20)	Asphyxia	Methane gas	Italy	Suicide by asphyxia by Methane Gas	
12	2012	Vapa et al. (21)	Asphyxia	Chocking & hanging	Serbia	Suicide by combination of choking and hanging	
13	2012	Austin & Byard (22)	Violent	Head impalement	Australia	Suicide by head impalement	
14	2011	Senthilkumaran et al. (23)	Poisoning	Parathion	India	Suicidal attempt by per rectal parathion	
15	2011	Schyma et al. (24)	Violent	Explosion	Germany	Suicide by head explosion	
16	2011	Findikcioglu & Findikcioglu (25)	Poisoning	Paint thinner	Turkey	Suicidal attempt with injection of paint thinner	
17	2009	Asamura et al. (26)	Asphyxsia	Wrapped tape and electrical cord	Japan	Suicide by combination of asphyxia	
18	2009	Viel et al. (27)	Violent	Stabbing	Italy	Suicide by sharp force	
19	2009	Salem et al. (28)	Violent	Multiple	Romania	Atypical suicidal methods	
20	2008	Tournel et al. (29)	Violent	Chainsaw	France	Suicide with a chainsaw	
21	2007	Behera et al. (30)	Poisoning	Copper Sulphate IV	India	Suicide with parenteral copper sulphate	
22	2004	Rautji et al. (31)	Violent	Cutting razor blade	India	Suicide with a safety razor blade	
23	2003	Rautji et al. (32)	Violent	Stabbing	India	Suicide by Stabbing	

^z Abbreviations: IV, Intravenous; SC, Subcutaneous.

culture, religion, personal beliefs, occupation, educational status, media influence, and so on (1, 9, 10, 22). Among the methods investigated here, nine were reported as poisoning, eight as violent deaths, four as stabbing, and others as different forms of asphyxia (Figure 1). Atypical poisoning was more common in south Asia than in other parts of the world (Table 2). Violent methods were used more by males than by females, and females used atypical poisoning more often. Similar findings were also reported in cases of typical suicides (7, 34-37). The mean age was about 40 years, with a range of 17-80 years. Therefore, no report was found for any individual under the age of 17. Similar findings were also found in the review conducted by Arun et al. (33), in 2010. The male-female ratio was 2.1:1. As usual, more suicides were committed by males than by females, however, the ratio was smaller in Asia than in the Western part of the world (1-3, 34, 36). Among 25 suicides, nine (36%) of the individuals were found to have psychiatric disorders (seven with depression, one with schizophrenia, and one with bipolar disorder), four were mentioned as having no morbidities, and others had no cue on their comorbidity status (Table 2). Previous reviews revealed that approximately 90% of suicide victims were found to have had at least one axis 1 psychiatric comorbidity (3, 5, 9). Though more severe psychiatric morbidities are supposed to be present among the individuals who have died by unusual methods, this review finding does not support such notion (28). Seven (28%) victims had notable risk factors such as financial burdens (2), personality domains (2), marital and family discord (2), and imprisonment (1).

Suicide is the end result of combination of complex factors (9, 10, 37). Prevention strategies have been formulated and implemented focusing the major chunk of the suicide. Eventually, it is very challenging to prevent sui-

No.	Age (Y)	Gender	Nuptiality	Mode	Country	Suicide/Attempt	Mental Disorder	Risk Factors	Previous At- tempt
1	30	Female	Single	Poisoning	Bangladesh	Suicide	Depression	Few friends	No
2	43	Male	Divorced	Hanging	Turkey	Attempt	Depression		Yes
3	17	Male		Poisoning	Iran	Attempt		Cluster B personality	Yes
4	23	Female	Single	Poisoning	Tunisia	Suicide	No		No
5	48	Female		Stabbing	Poland	Attempt			
6	67	Male		Stabbing	USA	Attempt			
7	30	Female	Married	Poisoning	India	Suicide	Depression	Marital discord	
8	30	Male	Single	Violent	Tunisia	Suicide	No	No	No
9	34	Male		Poisoning	India	Attempt		Family disharmony + alcoholic	No
10	35	Male		Asphyxia	Italy	Suicide			
11	40	Male		Asphyxia & Choking	Serbia	Suicide		Prisoner & criminality	
12	80	Male		Violent	Australia	Suicide	Depression & Pancreatic Cancer		
13	35	Male		Poisoning	India	Attempt	Hypertension		
14	57	Male		Violent	Germany	Suicide	No	No	No
15	55	Female		Poisoning	Turkey	Attempt	Bipolar 1		
16	52	Male		Asphyxia	Japan	Suicide		Financial	
17	43	Female		Stabbing	Italy	Suicide			
18	32	Female		Violent	France	Suicide	Schizophrenia		
19	22	Male	Single	Poisoning	India	Suicide	Depression	Financial	
20	29	Male		Cutting	India	Suicide	Depression		No
21	50	Male	Married	Stabbing	India	Suicide	No		No
22	22	Male		Violent	Romania	Suicide			
23	19	Male		Violent	Romania	Suicide			
24	30	Female		Poisoning	Romania	Suicide			
25	76	Male		Violent	Romania	Suicide	Depression		

cides by unusual means; however, few patterns were also prevailed. For example, intentional poisoning in its unusual form was more common in Asia and violence in its unusual form were found to be more common in the west.

4.1. Conclusions

Adult males are more prone to use unusual methods of suicide than females, with males using violent methods more often and females using unusual poisoning methods more often. Asians and south Asians used poisoning methods more often than individuals from other parts of the world. Review of articles of relatively short duration, few number database inclusion, and only English articles

would preclude the generalization. Further large-scale reviews should explore these issues more vigorously.

Footnote

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