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## Gender differentiation in methods of suicide attempts

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### Summary

#### Background

Suicide is an important public health problem worldwide, especially due to an increasing rate of suicides committed by violent methods. This study compared and assessed the methods used in suicide attempts (but no completed suicides) as undertaken by men and women and investigated the possible role of gender in the selection of suicide method.

#### Material/Methods

The study was conducted among persons who attempted suicide by various methods and were admitted to hospital. The study population comprised 147 participants (33 males and 114 females) aged between 14 and 33 years.

#### Results

The most prevalent methods of suicide attempts were pharmacological drugs abuse (42.31%) and exsanguination (25.64%), and the least frequent were poisoning and throwing oneself under a moving car (1.28%). The findings revealed that the female subjects tended to choose pharmacological drugs overdose and exsanguination as the suicide method, while males more frequently used hanging and asphyxia. Females also used a greater number of different suicide methods.

A yellow rectangular button with a speech bubble icon and the word 'Feedback' written vertically in black text.

## Conclusions

The study results indicate that women as a group more frequently attempted suicide rather than actually committing it, whereas men were more likely to complete suicides and choose more violent suicide methods; thus, women are the “attempters” and “survivors” of suicide attempts. The study findings may have implications for therapy and prevention of suicide, and suggest that psychotherapeutic activities should be tailored to the psychological and personality traits associated with gender identity.

**Keywords:** gender (male-female/men-women), suicide attempt methods

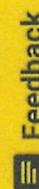
## Background

Suicidal behaviours are a serious public health problem worldwide. In the individual perspective, suicide is a manifestation of the person’s suffering, and in the interpersonal and social perspective it is not only a tragedy and a loss for a family and close friends, but also a loss of a community member and of the possible benefits which the person could have brought to the society. Suicide is among the 5 major causes of death in young people [1]. Suicides in general are one of the leading causes of death worldwide, with suicide-related mortality approximating 2% and the attempted suicide being a major risk factor for suicide completion [2]. The number of suicides has been increasing around the world, especially among young persons and adult males. According to present estimates, suicide is the third cause of death among young people [3,4]. Moreover, violent methods of suicide such as hanging have been on the increase, suggesting that these more lethal methods contribute to the higher rate of suicide risk [5]. Some of the personality traits that were identified after suicide attempts included anger, aggression, and temperament/character [2]. The factors contributing to suicide attempts are feelings of helplessness and hopelessness [6], but also include alienation and being misunderstood by others [7]. A nonfatal suicide attempt is among the strongest clinical predictors of a completed suicide, which is reflected by the recurrence of suicide attempts [8].

Literature data suggest that suicide attempts are more frequently undertaken by women, whereas men are more often the performers of effective (lethal, fatal) suicides [3,4,9]. However, there are only a few reports on the methods applied by males and females in suicide attempts. In view of the scarcity of such data, the aim of the present study was to assess the differences in the methods used by Polish men and women who attempted suicides and were hospitalised thereafter.

## Material and Methods

This study was conducted among persons who attempted suicide by various methods and were admitted to hospital for this reason. The study population comprised 147 participants (33 males and 114 females) aged between 14 and 33 years. The subjects received treatment (pharmacology and psychotherapy) at mental health centres (in- or out-patient clinics) due to suicide at-



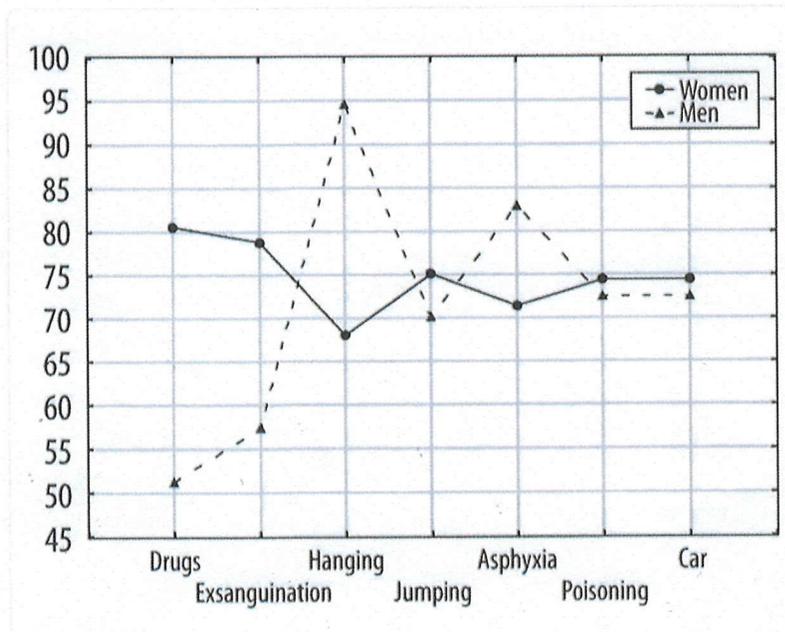
tempt. The hospitalization was voluntary. Neither of the subjects was diagnosed with psychotic disorders or mental retardation.

The examination was anonymous and the participation was voluntary. The study objectives formulated as an effective help for persons in difficult life situations as well as an important research problem for effective prevention were presented to the subjects, and they expressed consent to participate, according to the Helsinki Declaration, prior to the study. There were no refusals. Permission to carry out the examinations was obtained from the health centre management. The examinations were performed using a structured, self-reported questionnaire developed by the authors, as well as the medical records of the subjects. The researchers were present during the examination to help the respondents with the questionnaire items if necessary.

For the statistical analysis, the chi-square test ( $\chi^2$ ) and Mann-Whitney "U" test were used. Values were expressed as mean  $\pm$ SD, and  $p \leq 0.05$  was considered significant. The calculations were performed using *Statistica PL 8.0 for Windows*[10].

## Results

[Table 1](#) shows the demographic characteristics of the study population. [Table 2](#) and [Figure 1](#) present the methods used by males and females in suicide attempts.



[Figure 1](#)

Suicide attempt methods in the study population.



Table 1

Study population characteristics.

Variable		n	%
Gender	Female	114	77.55
	Male	33	22.45
Age	x±SD	19.37 (5.40)	
	Range	14–33	
Educational level (participants)	Elementary	87	59.18
	Vocational	3	2.04
	Secondary	51	34.69
	University	6	4.09
Educational level (parents)	Elementary	50	20.58
	Vocational	60	24.69
	Secondary	98	40.33
	University	35	14.40
Family socioeconomic status	High	45	30.61
	Average	72	48.98
	Low	30	20.41
Family structure	Complete family	81	55.10
	One-parent family	51	34.70
	Reconstructed family	15	10.20
Residency	Urban	93	63.27
	Rural	54	37.73



Table 2

Suicide attempt methods in the study population.

Suicide attempt method	Total		Females		Males	
	n	%	n	%	n	%
1. Pharmacological drugs abuse	99	42.31	87	87.88	12	12.12
2. Exsanguination	60	25.64	54	90.00	6	10.00
3. Hanging	39	16.67	18	46.15	21	53.85
4. Jumping from a height	21	8.97	18	85.71	3	14.29
5. Asphyxia	9	3.85	3	33.33	6	66.66
6. Poisoning	3	1.28	3	100.00	0	0
7. Throwing oneself under a car	3	1.28	3	100.00	0	0
<b>Total</b>	<b>234</b>	<b>100.00</b>	<b>186</b>	<b>79.49</b>	<b>48</b>	<b>20.51</b>

(Females-Males) Chi-square=929.750, df=6, p&lt;0.001

As revealed by the study results, the subjects used several different methods when attempting suicide. These included pharmacological drugs abuse, exsanguination, hanging, jumping from a height, asphyxia, poisoning and throwing oneself under a moving car.

The most prevalent suicide methods are pharmacological drugs abuse (42.31%) and exsanguination (25.64%), while the least frequent are poisoning and throwing oneself under a moving car (1.28%). As revealed the chi-square of 929.750 with 6 degrees of freedom ( $p < 0.001$ ), the proportions of observations in the contingency table vary. Asphyxia, poisoning, and throwing oneself under a car are infrequent. The predominant methods of committing suicide differ considerably from those reported in other studies, i.e. hanging or poisoning [11–15]. In the study population, the use of firearms as the suicide method was not found.

Table 3 displays the results of a comparative analysis of the methods used in suicide attempts by male and female subjects (Mann-Whitney U-test).



Table 3

Comparison of suicide methods as used by females and males.

Suicide attempt method	Females		Males		Significance		
	Sum of ranks	Mean rank	Sum of ranks	Mean rank	U	Z	p
Pharmacological drugs abuse	9187.500	80.59	1690.500	51.23	1129.500	4.29524	p<0.001
Exsanguination	8985.000	78.82	1893.000	57.36	1332.000	2.99388	p<0.001
Hanging	7756.500	68.04	3121.500	94.59	1201.500	-4.12517	p<0.001
Jumping from a height	8562.000	75.11	2316.000	70.18	1755.000	0.96510	ns.
Asphyxia	8143.500	71.43	2734.500	82.86	1588.500	-3.27011	p<0.001
Poisoning	8485.500	74.43	2392.500	72.50	1831.500	0.93834	ns.
Throwing oneself under a car	8485.500	74.43	2392.500	72.50	1831.500	0.93834	ns.
Number of suicide attempt methods	8833.500	77.49	2044.500	61.95	1483.500	2.10427	p<0.05

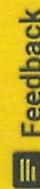
Statistically significant differences refer to pharmacological drugs overdose and exsanguination (females) as well as to hanging and asphyxia (males) (Table 3, Figure 1). Furthermore, females obtained a significantly higher score with respect to the total number of suicide methods.

For comparison, it is worth reporting the data on suicide rates in Poland during the study period. In 2005, the total rate of completed suicides was 15.2 (per 100 000 population), the rate for males being 26.8 and for females 4.4 [16]. In 2008, the respective rates were 14.9, 26.4 and 4.1. [17]. These values point to males as the group more frequently committing suicides.

## Discussion

As evidenced by the study results, suicide attempts conducted by females are over 3 times as frequent as those pertaining to males. Females also show a higher creativity in selecting the modes of committing suicide. However, despite the considerably larger number of suicide attempts and the number of women making such attempts, the females are less frequently the victims of fatal suicides, which indicate that they tend to be the “attempters” and “survivors” rather than “performers” of suicides. This finding may be associated with many factors, amongst which the mode of suicide attempt seems to be important.

In the present study, the modes of committing suicide are distinctly different from those found in



other reports, i.e. hanging or poisoning [11–15]. In the cases of suicidal death, the most prevalent suicide methods were hanging (36.90%) [18] and poisoning [15]. However, the studies mentioned above focused on completed suicides, not the suicide attempts. Furthermore, most of the methods reported in the present study are characterized by so-called softness, low effectiveness and “feminine” rather than “masculine” attributes. Some authors presume that women “prefer” the means of lower effectiveness, like exsanguinations or abuse of hypnotics, while men tend to use more violent methods like firearms or jumping from a height [11,19].

In the present study, the use of firearms in suicide attempt was not found, perhaps due to a severely restricted accessibility to the firearms in Poland, which may point to the role of cultural and legislative specificity [cf. 20]. Keeping firearms at home may be a suicide risk factor, e.g. suicide attempt within the preceding year was common among the participants from the US who reported that they currently lived in a home where firearms was kept [21,22].

### Suicides: Males & females

World-wide, men commit 2–3 times more suicides than women do, but women make more suicide attempts, which is called the “gender paradox” in suicides [3,9,15,23,24]. This paradox was also seen in our study results.

The gender paradox does not depend on age, and more girls (10.4%) than boys (6.0%) reported a previous suicide attempt. Among girls, the higher level of risk factors may account for a higher level of self-reported nonfatal suicidal behaviour [25]. The completed suicide, i.e. suicidal death, is more common among males, but the attempted suicide is more common among females (3 times more for each gender) [26–28]. The study populations in almost all the studies on attempters consist of a greater number of women than men, and the female to male ratio is 3.1:1.0 [18,24]. In our study the ratio is similar: 3.45:1.0. Although 62% of women who committed suicide had made previous suicide attempts, 62% of men who committed suicide had not previously made such an attempt [28]; therefore, women are more likely to attempt suicide while men are more likely to commit it [15,29]. This is consistent with our findings – women reported undertaking more suicide attempts than men did. Thus, the recurrence of suicide attempts may be a predicting factor of suicide completion among women, but not among men. Some studies suggest the seasonality of suicide attempts in females, but not in males [30].

### Suicide methods: Males & females

Some authors suggest that this “less effectiveness” of suicide attempts undertaken by women may be associated with the methods of these attempts. Suicide attempts made by males more frequently required intensive care and involved a higher risk of death [24], which reflects the more death-oriented intentions of the male attempters.

When analysing the gender differences in suicide attempts worldwide, we need to consider the factors related to the culture and tradition. For instance, in a study performed in India, the most favoured suicide method among males and females was hanging (36.9%) followed by poisoning

(34.7%). Male dominance was apparent for each method of suicide except for self-immolation. Males were relatively more likely to use hanging (as in the present study) and poisoning, while females preferred drowning and self-immolation as the methods of suicide [18]. In India, the ritual self-immolation of widows ("sati", which means "good wife" in Sanskrit) has a long tradition; therefore, it is not surprising that this suicide method was more frequently chosen by women.

The gender-related differences in the methods of suicide attempts were also noted among the patients with psychopathological conditions: male patients with psychotic or substance-related disorders preferred hanging, while female patients with similar conditions chose self-poisoning [31]. The results of our study are similar, although the participants were not diagnosed with psychotic disorders.

As mentioned above, the availability of the means is one of the most important factors for suicidal behaviour [27]. A retrospective study was conducted which analysed post-mortem data on 164 firearm-related casualties. The most common manner of death was suicide (60.4%) and most of the victims were males. The entry wounds were primarily located in the head (right temple) and chest (precordium) [32]. In our study, no suicide attempts by using firearms were found, probably because the accessibility to firearms in Poland is very restricted.

Worth mentioning is a neglected factor that contributes to the gender suicide ratio – the wound site or the area of the body that is wounded in firearm suicides. Males may have a higher rate of suicides by firearms partially due to their greater likelihood than women for shooting themselves in the head as opposed to the body. This has been related to gender differences in fear of facial disfigurement and suicide intent. Data from 807 suicides committed with firearms revealed that women were 47% less apt than men to shoot themselves in the head as well as use shotguns and rifles in their suicides (weapons that make head shooting awkward). The findings are consistent with the assumption that women are more concerned than men about facial disfigurement, and that women have a lower desire to die than men [33]. At this point one can see gender conditioning resulting not only from the psychopathology or suicidology, but also from psychology – women, even in the face of death (or only an attempt), are concerned with aesthetics and their own appearance.

### The "Gender Paradox" Explained (?)

The finding that males have higher suicide rates than females is one of the best empirically documented social facts in suicidology, but the underlying reasons continue to be debated; maybe women have a lower desire to die than men do (cf. above) [33].

Major depression forms the background of more than half of all suicides. Women are twice as likely as men to experience major depression, yet women are one fourth as likely as men to take their own lives. One of the possible explanations to this paradox may be that men highly value independence and decisiveness, and they regard acknowledging a need for help as a weakness and avoid it. Women appreciate interdependence, and they consult friends and readily accept help. They consider decisions in the context of a relationship, take many things into considera-

tion, and they feel freer to change their minds [34,35].

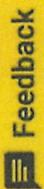
The explanation of the gender-related differences in suicide attempts is based on Breed's 5 "components of a basic suicide syndrome", which appears to be a satisfactory model for explaining male suicide. The same factors affect the sexes differently, but the content and structure of the roles are different. Failure is obvious for males, but the female role is diffuse and lacking in standards for both the success and failure [36].

Some theories try to explain the gender paradox in suicidal behaviour. The first one is related to the method: men tend to use violent methods that are more lethal. The second one is about the differences in the prevalence of depression and alcohol abuse between the genders. It also includes the fact that women more frequently seek treatment, and this may prevent suicide. The socialisation theory suggests that both genders tend to adopt self-destructive behaviours according to their cultural backgrounds; therefore, suicide attempts (but not necessarily the committed suicides) would be "more acceptable" among females [24,35,37].

The higher rate of suicide attempts among women is probably related to the fact that depression occurs more frequently in this group, whereas the higher rate of suicidal death among men is probably associated with the choice of the method. Women prefer less ultimate means, such as exsanguination and abuse of hypnotics, while men are apt to use firearms or jump from a height [19]. In other words, males prefer more lethal methods (e.g. hanging) while the methods favoured by females tend to be less lethal (e.g. overdose). Furthermore, women may intentionally use less lethal suicide methods to draw attention to their situation, and do not intend to die. Males are more prone to aggressive, antisocial and externalising behaviours – they are likely to make more impulsive, lethal, active and determined suicide attempts [29]. In addition, nonfatal suicidal behaviour (e.g. suicidal ideation and nonfatal attempts) is associated with "femininity" and that of killing oneself is considered "masculine" and "powerful" as a rational response to adversity. Therefore, due to social pressure, males may be protected against nonfatal suicidal behaviour, but are more likely to resort to more lethal means of suicide in order to reduce the likelihood of surviving [38].

The suicide attempts conducted by males more frequently needed intensive care and involved a higher risk of death. A possible explanation for this is that aggressive behaviour and alcohol abuse might mask the depression symptoms among men. A cultural bias should then be considered: men could have more difficulties admitting that they have problems that indicate "weakness" [24]. The inverse is also probable – alcohol abuse, especially alcohol addiction, may cause major depression episodes with lethal suicide attempts, often committed during alcohol intoxication.

Searching for treatment, among other things, may protect women from a fatal suicidal behaviour. They also tend to perceive problems as personal and seek help at health care institutions. The males usually see their distress as a result of economic or social problems, they deny that they have depression, and tend to abuse alcohol. One could also assume that they perceive survival after a suicidal attempt as a failure, since suicide seems to be a more "masculine" behaviour [24,35,38].



## Conclusions

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The implications of the findings in this work primarily apply to prevention and therapy.

When analysing the therapeutic aspect, it is essential to consider indirect self-destructive tendencies and behaviours, especially the passive ones (neglect) [20]. The evidence for this was provided by a 10-year follow-up of adolescents after suicide attempts – it was found that 70.50% of them stated that they were happy [39]. Moreover, optimistic reframing of negative life events for the patients may have therapeutic implications for the prevention of suicidal activity [40], since it is well known that pessimism is one of the suicide risk factors [41].

Thus, neither suicide attempt itself, nor suicide attempt method, erase the possibility of leading a happy life, and that is why it is worth offering such persons this kind of help and motivating them to take the chance. It seems to be important to tailor the (psycho) therapeutic activities to the psychological and personality traits associated with gender identity.

An answer to the question of how many of suicide attempts were desperate “crying for help”, especially among women, and how many of suicide attempts were actual suicide intensions, may be the subject of further research [cf. 20].

## Footnotes

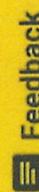
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