

Gender Differential in the Choice of Methods of Dying by Suicide in Southwest Nigeria

Abstract

Background: The choice of method of dying by suicide can determine the lethality of a suicide attempt, especially among males and females. However, a less attention has been paid to this area of research among Nigerian authors. **Objective:** The objectives of this study were to investigate the distribution of completed suicide across methods of suicide among decedents and to examine the odds ratio of males using hanging or poisoning methods. **Materials and Methods:** This retrospective chart-based study was conducted among those who died by suicide and whose cases were reported at the police stations. The data were collected by checking the files at the homicide and suicide departments at the police headquarters in southwest Nigeria. Ethical approval was obtained for the study. Descriptive statistics and logistic regressions were used to analyze the data. **Results:** The results revealed that 78.3% were male, while females were 21.7%. 53.7% of the sampled population died by hanging and 23.2% died by poisoning. 8.9% of the decedents died by self-harm suicide. Suicide choices traceable to mental illness and jumping/drowning were 6.4% and 6.4%, respectively, while suicide by gunshot (1.5%) was less prominent. Furthermore, the result showed that there was a 3% likelihood that a male would die by hanging. **Conclusion:** Males are 3% more likely to die by hanging and are less likely to die by poisoning.

Keywords: Female, male, method of dying, suicide, Nigerians

Introduction

Gender disparity in the choice of methods of suicide is an area of research that has received less attention in the African literature; a large portion of knowledge in this area of research comes from western authors. Although more than three-fourth of the world's suicide rates occur in Africa, which is classified as a low- and middle-income continent,^[1] this continent lacks gender-specific research that could guide policy on suicide attempt prevention. More specifically, for Nigeria, where suicide research is still focused on gender differences for parasuicidal behaviors,^[2,3] records on the male–female disparity in choice of suicidal death are still largely unknown.

The choice of methods of suicide can determine the seriousness of a suicide attempt.^[4] The choice of method of dying by suicide refers to the route taken by the decedents to take their own lives. This choice can be lethal or nonlethal. Lethality means that there is a greater likelihood of

death from the methods of suicide used,^[5] or that there is a lesser chance of surviving the act of suicide. Some of these methods that have been recognized in the extant literature to be more lethal are hanging, jumping, the use of a gun, and drowning.^[6,7] Others, such as ingesting poisons, drug overdose, or self-cutting, are considered less violent.^[8] The complexity of suicidal behavior, which involves multiple risk factors and the means of carrying out the killing of oneself, makes a study focused on the choice of dying by suicide important.

It is well-known that men die at a higher rate from suicide than women, despite attempting suicide at a lower rate.^[9] This demonstrates the precision with which men intend to die by suicide. Meanwhile, when both genders use the same suicide method, men's experiences are reported to be more lethal than women's.^[10] As a result, men would use more lethal suicide weapons than women.

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Suicide is sensitive to the availability and accessibility of methods. Suicide by firearm is common, where firearms are easily accessible.^[11] In contrast, suicide by poisoning or drug overdose is very likely in areas where pesticides, insecticides, or drugs can be obtained over the counter.^[12,13] This still has a gender component, as it can be argued that despite availability and accessibility of suicide methods, females are more likely to die by suicide with less violent methods, whereas males would still consider a more lethal method of suicide.^[14] This could imply that females do not want to die by suicide, but are crying out for help because they are in distress, or that they attempt suicide, but get quick intervention before the fatality.^[15] Other characteristics, like the public condemnation of suicidal behavior, are more prevalent in men than women^[16] because men are less likely than women to receive sympathy for suicidal behavior; males being more impulsive and aggressive than women,^[17,18] and mental illness^[19] contributes to suicide more in males than in females. Furthermore, esthetic values,^[20] body dysmorphia,^[21] and the feelings of their family and friends about their corpses being mangled^[9] are more likely to influence females' choices of a nonlethal method that will cause them to die with their body still intact.

For men, the issue of masculinity – that men should naturally be stronger than women – as well as the fact that men are socially more isolated than women – are likely to prevent them from seeking help during crises periods,^[22,23] which can result in the ultimate price being paid even when less lethal means of suicide were used. Furthermore, men are more likely than women to use multiple lethal weapons,^[24,25] and they are thought to be more likely than females to know how to obtain more lethal weapons; they are also more likely than females to have technical knowledge of these lethal means of suicide such as hanging and firearms.^[9,10]

In addition, the study of Adjacic-Gross *et al.* (2008)^[26] discovered that acceptability factors and cultural perspectives are the foundations for any particular traditional method of suicide. The suicidal person would understand that suicide is acceptable in a particular society, and then, a sociocultural perspective would be used to deal with obstacles associated with a specific method of suicide. For example, it is generally acceptable in the Yoruba culture to die by suicide, following the saying of *Iku ya ju esin* – death is more honorable than shame – which caused many precolonial Yorubas to die by suicide.^[27,28] Moreover, the Yoruba catchphrase of *se bi okunrin* (literally “behave like a man”), which dignifies suicide by associating it with machismo, is a widespread evidence of suicide's acceptability.

However, because of gendered differences in the morbidity of suicide^[29] and in the choice of dying by suicide, as repeatedly stated above, the aims of this current study are:

1. To examine the distribution of completed suicide according to the choice of methods of suicide among decedents in the southwest of Nigeria,
2. To investigate that male would more likely die by hanging and less likely by poisoning methods of suicide.

This is based on the background on which^[2] and^[12] were able to demonstrate that hanging and poisoning methods of suicide were prominent in Nigeria, and that both men and women used poison and fewer women used hanging.

The findings from this study will help us better understand gender differences in suicidal death, which could aid in the development of a public health-focused preventive intervention. Furthermore, therapists, counselors, and other mental health professionals can use this knowledge to assist suicide attempters when conducting a suicide risk assessment.

Materials and Methods

This is a retrospective chart-based study of the total number of suicidal deaths handled by the police in southwest Nigeria for a decade (2012–2022). Southwest Nigeria is a geopolitical zone that predominantly comprises Yoruba people with well-established sociopolitical structures. It has six states: Ekiti, Lagos, Ogun, Ondo, Osun and Oyo. The region's population was estimated to be 32.5 million.^[30] The region has a mix of other tribes in Nigeria. The Yoruba people's worldview about suicide is both condemnation and escapism, especially if it protects the decedent from dishonor, indignity, and shame.^[27] Underreporting of suicidal death is a significant challenge in obtaining accurate data in Africa; this appears to be exacerbated by the illegal nature of the issue of suicide in Nigeria.^[2] This has had an impact on suicide data registry. In order to avoid double counting and ensure data quality, we collected data as coded in the case files at the police headquarters (HQ) of each state in southwest Nigeria. The police HQ across the six states have a department or unit called the Directorate of Homicide or Homicide/Suicide Department. Suicide is reported to the police in Nigeria and some other developing countries, and police departments in charge of homicide or homicide/suicide will investigate and take further action, like reporting to the coroner^[31-33] before closing the case. Due to the sensitive nature of this study, research assistants (RAs) with a background in mental health were recruited and trained in data collection. Ethical approval was sought and obtained from Olabisi Onabanjo University Teaching Hospital's Research and Ethics Committee with the approval number OOUTH/HIREC/491/2022AP, dated Mar 21, 2022 and each police zonal HQ gave permission to collect the data from the directorates. The study was conducted in accordance with the Declaration of Helsinki. The RAs had access to the files of suicide that the directorate of homicide/suicide in each state police HQ had handled in the past, covering the decade of interest.

Some police officers in the directorate who had firsthand knowledge of some of the suicide cases provided additional information. For the purpose of this study, 203 files were obtained from police stations.

Procedure

The RAs used a predesigned form to collect information from the case files found at the police HQ, including items of interest such as the gender of the decedents and the methods of suicide as indicated on the files. Following that, the research team conducted a detailed analysis, grouping the information according to relevance, such as tallying the most common methods reported and identifying the corresponding gender with the methods of suicide. Ethical considerations, particularly the anonymity of the cases of suicide seen, were strictly followed.

Data analyses

This study had three objectives. The first was to examine the distribution of suicidal deaths according to the methods of suicide. This was achieved using descriptive statistics. Several methods of suicide execution were discovered; however, for ease of analysis, we grouped them according to existing themes mentioned in the Nigerian literature. We specifically followed Olibamoyo *et al.*'s (2021) classification and analyzed it accordingly. The second and third objectives were about the likelihood that males would die more by hanging and poisoning than females. Binary logistic regression was used to analyze these objectives, and odd ratios were calculated to determine the percentage of the likelihood of the occurrence that a male or female would die by suicide using a specific method. The rationale for binary logistic regression was that the predictor variable (sex) is nominal, and we dichotomized our outcome variables by dummy coding them to meet the assumption that the dependent variable in binary logistic regression must be in two levels. We classified suicide methods into two categories based on the frequency with which they appear to be used. The two most common methods were hanging (52.7%) and poisoning (23.6%). Males were entered as an independent variable in the regression model, while females were made constant against the hanging method. In addition, males were entered as a predictor variable in the logistic regression model, while females were made constant against the poisoning method. This is consistent with the idea that males would prefer to use more lethal methods of suicide than females.^[20]

Results

From Table 1, 203 reports of suicide were found across the southwest states in Nigeria. There were more male decedents – 159 (78.3%) than females – 44 (21.7%) in the sampled population.

Table 2 shows the frequency distribution of the methods of dying by suicide. It was revealed that 53.7% of the sampled

population died by hanging, suggesting that suicide by hanging was more prevalent. Similarly, 23.2% died by poisoning, and 8.9% of the decedents died by self-harm suicide. Suicide choices traceable to mental illness and jumping/drowning were 6.4% and 6.4%, respectively, while suicide by gunshot (1.5%) was less prominent.

Table 3 is a binary logistic regression analysis used to see the number of times it is likely that males would die by hanging. The overall model was statistically significant χ^2 (1, N=203=10.23, $P < .05$), with a Nagelkerke R-squared score of .70). The model correctly explained between 52% (Cox and Snell R Squared) and 70% (Nagelkerke R Squared) and classified 61.6% of cases, suggesting that the independent variable significantly contributes to the model (χ^2 (1) =10.23, $P < 0.003$). Specifically, the odds of males dying by hanging will be 3% (odds ratio = 3.18, 95% confidence interval = 1.57–6.45). This means that there is a 3% likelihood that a male will die by hanging.

The overall model in Table 4 was insignificant χ^2 (1, n -203 = 6.98, $P > 0.05$). This suggests that male gender did not significantly contribute to the model. The model explained between 34% (Cox and Snell R Squared) and 51% (Nagelkerke R Squared) and classified 76.8% of cases. Furthermore, the male odd ratio of .37 indicates that the chance a male dies from poisoning suicide is .37 % less.

Table 1: Frequency distribution showing percentage of gender in the study

Gender	Total, n (%)
Male	159 (78.3)
Female	44 (21.7)
Total	203 (100)

Table 2: Descriptive analysis showing methods of dying by suicide

Methods of committing suicide	Frequency, n (%)
Poison/insecticide/sniper	47 (23.2)
Gunshot	3 (1.5)
Self-harm (blade/cutting/arson)	18 (8.9)
Hanging	109 (53.7)
Mental illness	13 (6.4)
Jumping/drowning	13 (6.4)
Total	203 (100)

Table 3: Results of binary logistic regression model showing gender differences in the risk of suicide by hanging

	B	SE	Wald	df	P	OR	95% CI OR	
							LL	UL
Male	1.16	0.37	10.23	1	0.001	3.18	1.57	6.46
Constant	-0.762	0.32	5.55	1	0.019	0.47		

CI=Confidence interval, OR=Odds ratio, LL=Lower limit, UL=Upper limit, SE=Standard error

Table 4: Results of binary logistic regression model showing gender differences in the risk of suicide by poison method

	B	SE	Wald	df	P	OR	95% CI OR	
							LL	UL
Male	-0.97	0.37	7.24	1	0.007	0.37	0.18	0.76
Constant	-0.46	0.31	2.23	1	0.135	0.63		

CI=Confidence interval, OR=Odds ratio, LL=Lower limit, UL=Upper limit, SE=Standard error

Discussion

Existing studies in Nigeria have shown that males and females choose different methods of suicide execution, but there is a little information on the strength of that choice for each gender. This study investigated the distribution of suicidal deaths across commonly recognized means of dying by suicide as well as the likelihood that males would die by hanging or poisoning. This current study provided reports of suicidal deaths in six Nigerian states over a decade (2012–2022). According to the present study, 203 reports were collected from police stations in six states in Nigeria, representing the southwest geopolitical zone. Uchendu *et al.*^[33] had a similar opinion when they accounted for 21 suicides in one city across fourteen and a half years. People do die by suicide in the setting of this study and that of Uchendu's, but their reportage is limited by religious and sociocultural factors,^[7] and the fact that it is still considered a crime to die by suicide.^[28] The results from the current study revealed more lethal means of suicide, as hanging was reported to be more common. This could indicate the level of thought that goes into the plan that leads to the decision to die by suicide.^[4] Factors such as the suicide method's availability and accessibility presuppose its lethality.^[11] For example, rope and a belt can be easily obtained as accessories for the hanging method. Typically, the ropes are formed into a noose, straightened, and tied to a ligature. This is done to hasten death as the rope stiffens the neck, disrupting fluid flow or breaking the neck. This finding is similar to the findings of Oyetunji *et al.* and Mars *et al.*,^[6] which identified the hanging method of suicide as a worldwide phenomenon. In this study, the poisoning method came in second to the hanging method. Tsirigotis *et al.*^[21] (2014) discovered that in a study among suicide attempters in Poland, a fewer of their participants chose the poisoning method. They reasoned that because their study focused on suicide attempters, the poisoning method used was most likely ineffective. According to Oyetunji *et al.*, the poisoning method of suicide is caused by marital or relationship problems or disunity in the family. In other words, people who are unhappy in their marriages or relationships are more likely to die from suicide. The implication of this is that prevention strategies should focus on raising awareness of the dangers of easily accessible methods of suicide. Similarly, public awareness of how to recognize suicidal behaviors should

increase. Moreover, more training should be provided to mental health professionals and paraprofessionals on how to conduct suicide risk assessments on suicide attempters, which could include questions about suicide methods that can inform the seriousness of their intent to die by suicide. A legal framework prohibiting lay people from handling pesticide poisoning should be established, and if the pesticide poisoning has been consumed, the lethality can be reduced through enhanced and improved medical attention and easy accessibility to treatment.

Those suffering from mental illness are at an increased risk of death by suicide. According to Gvion and Apter,^[14] psychiatric diagnoses of Axis I and II and factors such as inability to seek help, poor social communication and disclosure, and aggressive and impulsive traits are more likely than not to contribute to suicidal behavior. Bachmann^[19] examined the differences between inpatients and outpatients' suicide rates. Surprisingly, those who are hospitalized die more from suicide than the general population. The current study is limited in its definition of mental illness because we did not specify the diagnoses of the decedents' mental illnesses because we collected the data from the homicide department of the Nigerian police. This calls for further studies exploring this area, focusing on suicide among various psychopathologies and trait-based definitions for more effective intervention.

There is evidence that males use the hanging method more than females; however, most of the studies in Nigeria^[2,12] do not report the odds of actually dying by this method. The odds ratio can be very useful in monitoring suicide mortality and developing prevention strategies. According to the current study, men are 3% more likely than women to die by hanging. Although Varnik *et al.*^[15] (2011) found that hanging was more common than other methods for both genders in a study conducted across 16 European countries, males were 1.5% more likely than females to die by hanging. They believe that characteristics such as socialist orientation, integration into the European Union, heavy alcohol consumption, and alcohol dependence all contribute to this.

Men are more vulnerable to dying by suicide than women, especially if they have previously attempted suicide.^[9] Prior attempts, according to Callanan *et al.*^[9] (2011), increased the use of the hanging method by 2.5% for American men. A male-specific suicide prevention program should be designed, especially if the male has previously attempted suicide. Morovatdar *et al.*^[29] (2013) reported that hanging on a ceiling fan is a common sight in some Middle Eastern countries. A logical explanation for the dominance of the hanging method over other methods is that the hanging method is a replacement for other lethal means.^[11] This could imply that if Nigeria did not have a law prohibiting the public possession of firearms, suicide by firearm would have been more common than hanging. In other words,

the hanging method is common because other methods are unavailable, possibly due to legal constraints.

Furthermore, males prefer to be more precise about suicide, informing their choice of more lethal means than females do,^[9] whereas females may be interested in drawing people's attention to the problems they are facing, as stated by Värnik *et al.*^[15]. In other words, females are more likely than males to communicate their problems, and using less lethal means may escalate them for others to see. Females are more likely to retain their beauty after death than males.^[20] This could explain why men commit suicide by self-harm at a higher rate than women. Women are known to be more sensitive to the feelings of their family members and friends, even when they want to die by suicide.^[20] When this occurs, the gravity of the death may be diminished, leading to suicide attempts rather than completed suicide. Moreover, sociocultural availability and accessibility factors have been linked to the hanging method.^[29] This means that prevention efforts should focus on raising cultural awareness of the dangers of the hanging method and encouraging programmes that emphasize more community connectedness, as Atilola and Ayinde^[27] advocate.

In the current study, the poisoning method was not significant for males. This is in apparent contradiction to the study by Adjacic-Gross *et al.* (2008)^[26] which found that there was an increase in the use of poison for men as well as a corresponding increase for women. Furthermore, consistent with our objective, which stated that men were less likely to die by poisoning than women, the odd ratios showed a lower probability that males would die from pesticides. According to Adjacic-Gross *et al.* (2008)^[26] if a suicide method is widely available, the barriers to possessing it are reduced, and thus, the acceptability of that means by suicidal individuals is reduced. In terms of the Nigerian situation, this means that *Sniper* and *Quick Action*, which are popular insecticides used to kill mosquitoes and rodents, are traded on the roadside and easily gotten at stores,^[13] and their acceptability for males would be low.

Conclusion

This study found that males are more likely to die by lethal means of suicide, whereas females prefer less violent means of suicide. This assertion is in line with existing research from national, regional, and cross-national studies. The current study also discovered that males are 3% more likely to die by hanging and are less likely to die by poisoning.

Limitation

Overreliance on data from police HQ, which may be unable to record specific information about the decedents, like psychiatric diagnoses, is a concern. This is a major problem in developing nations like Nigeria, where suicide is heavily criminalized.^[12] This can create stigma for

family members of those who attempted suicide, which may discourage reporting of suicidal attempts and deprive researchers of accurate official statistics. The number of suicide deaths recorded in this study is not representative of national data. Because our research focused on one of the Nigeria's six geopolitical zones, the study's findings should be interpreted with caution.

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Conflicts of interest

There are no conflicts of interest.

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