# Epidemiology of Suicide by Hanging in Transkei, South Africa

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**Abstract:** To describe the epidemiology of suicide by hanging, in Transkei region of South Africa. This is a record review of the autopsy register from 1993 to 2003. There is an increasing trend of hangings from 5.2 per 100,000 to 16.2 in 2003. The highest was in the 20- to 29-year age group. The least number of hangings of 2.2 per 100,000 was in those over 70 years of age. Males (86.4%) outnumber females. The ratio of male to female suicide is 6.4:1. The 2 youngest suicide victims were also males aged 9 years. Peak of these hangings is in May and November and least in September. There is increasing trend of hanging especially among young adults between 20 and 29 years old.

**Key Words:** suicide, hanging, poisoning, firearm injuries

(*Am J Forensic Med Pathol* 2006;27: 75–78)

Globally, an estimated 815,000 people killed themselves in 2000, making suicide the 13th leading cause of death.[1] During the last 45 years, suicide rates have increased by 60% worldwide. Suicide is now among the 3 leading causes of death of those aged 15–44 years.[1,2] Suicide attempts are up to 20 times more frequent than completed suicides.[1] The World Health Organization (WHO) has estimated that each year over 1.6 million people lose their lives to violence. On the average, 2233 people commit suicide daily, roughly 1 person every 40 seconds.[3] In numerous countries, the number of suicides is significantly higher than the number of deaths due to traffic accidents. There are age- and gender-specific cultures of suicidal behavior.[4]

In South Africa, about 10,000 people commit suicide yearly, and most of those are young people within the economically active lives.[5] A few studies carried out indicate that the problem of suicide is on the increase. A study in 1998 has shown that major reasons to commit suicide were failing to solve problems, and mental illness.[6] A recent (2002) National Injury Mortality Surveillance System (NIMSS) report showed that hanging (42.3%) and firearm injuries (29.4%) were the major causes of suicides. Poisoning by means of drugs and pesticides was the cause of death in 13.6% of the suicides, while gassing accounted for 7.1%. More than half of all suicide victims were between 20 and 39 years of age. There were 4.7 male suicides for every female.[7]

There is an increasing trend of suicidal deaths in Transkei area. Nearly two thirds (64%) of them were young adults less than 30 years of age. The majority (87.5%) were males.[8] A study conducted by Mazruk et al[9] in New York City showed that 7.1% of those who are HIV-positive commit suicide. South Africa is in an HIV/AIDS epidemic of shattering dimensions.[10] To date, about 200,000 have died of AIDS-related illnesses, and more than 5 million are infected.[11] Depression in the HIV-positive individuals is significantly higher. The real incidence of HIV-related suicide is not known. Some circumstantial evidence indicates that the numbers are increasing.[12] The purpose of this study is to correlate the growing number of hangings in relation to age and gender in this area.

## METHODS

This is a record review of the autopsy register between 1993 and 2003 in Umtata General Hospital. The mortuary deals with about 1000 medicolegal autopsies (unnatural deaths) annually, from Umtata and Nqgeleni magisterial districts, which collectively have a population of about 300,000. Umtata General is the teaching hospital of the University of Transkei Medical School. Transkei was one of the former black homelands granted "independence" under apartheid South Africa to settle the Xhosa-speaking tribal people. It is now part of Eastern Cape Province. Most of the current political leaders, including Mr Nelson Mandela, have their family roots in this region.

All medicolegal autopsies are recorded in a register at the mortuary. The name, address, age, sex, and cause of death of the victims are recorded in the register. All records related to hangings were collected and analyzed using Epi-Info 6.4 computer program. The results have been presented in the form of tables.

## RESULTS

There is an increasing trend of hangings from 5.2 per 100,000 in 1993 to 16.2 in 2003. Males (7.8 per 100,000) outnumbered females (1.2 per 100,000) (Table 1). The incidence of hangings decreases with advancing age. It was highest in the 20- to 29-year age group (32.8 per 100,000)

Manuscript received January 10, 2005; accepted June 15, 2005.
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ISSN: 0195-7910/06/2701-0075
DOI: 10.1097/01.paf.0000202738.28446.4a

**TABLE 1.** Yearly Hanging Per 100,000 Population (1993–2003)

| Year | Hanging Per 100,000 Population | | Total Hanging Per 100,000 Population |
|---|---|---|---|
| | Males | Females | |
| 1993 | 4.5 | 0.7 | 5.2 |
| 1994 | 6.5 | 0.5 | 7 |
| 1995 | 4.5 | 0.5 | 5 |
| 1996 | 5.2 | 1.2 | 6.5 |
| 1997 | 6.0 | 0.5 | 6.5 |
| 1998 | 9.0 | 0.5 | 9.5 |
| 1999 | 8.5 | 1.2 | 10 |
| 2000 | 8.2 | 2.0 | 10.2 |
| 2001 | 9.2 | 2.7 | 12 |
| 2002 | 10 | 1.2 | 11.2 |
| 2003 | 14 | 2.2 | 16.2 |
| Average | 7.8 | 1.2 | 9.0 |

and least in those 70 years and older. In those less than19 years, the rate is 23.8 per 100,000 (Table 2).

Eighty-six percent (86.4%) of the victims in this study were male. Two thirds of them (66.8%) were less than 40 years of age. There were 6.4 male suicides for every female. This ratio is highest (9:1) among the 20- to 29-year age group and least (1.2:1) in those aged above 60 years (Table 2). In those less than 19 years of age, there were 5.8 boy suicides to a girl. The 2 youngest suicide victims were also males, aged 9 years, and they have been included in the 10- to 19-year age group. The highest number of suicides were in May (43) and lowest in September (23) (Tables 3 and 4).

## DISCUSSION

This study focuses only on hangings because it is the commonest cause of suicide. Firearm injuries and poisonings usually carry an element of doubt of whether it is suicide or homicide. The average annual incidence of violent and/or traumatic deaths in the Transkei region of South Africa is 162 per 100,000 populations. Firearm-related deaths, at 43 per 100,000 of the population per year, have contributed substantially to this high incidence. This is a major cause of concern.[13]

Since there is stigma attached to suicide, there is a tendency to shy away from the truth in firearm injuries and poisonings. Furthermore, to establish a suicidal intention in poisoning, laboratory findings are needed to confirm. Often, the truth is not disclosed, because of the difficulty in obtaining claims from insurance companies. Transkei is a relatively rural and impoverished region in South Africa. The unemployment and illiteracy rates are high. The majority of people are dependent on subsistence farming and income from migrant laborers, mainly from the mines. Violence, including suicide, is a major concern to health care professionals. Suicide is a complex phenomenon associated with psychologic, biologic, and social factors.[14]

There has been an increase in the trend of hangings since 1993. It has increased almost 3-fold, 5.2 to 16.2 per 100,000 from 1993 to 2003 (Table 1). Hangings alone in this region are equivalent to the global suicide rate of 16 per 100,000.[15] Suicide is generally unacceptable to black people but has showed an increase in recent years (Meykiso, unpublished data). Lourens and Naseema[16] have also reported similar observations among South African blacks.

Hanging is 6.5 times more common in males (7.8 per 100,000) than females (1.2 per 100,000) (Table 1). One of the

**TABLE 2.** Hanging: Age Group Versus Gender (1993–2003)

| Age Groups | Hanging/100,000 | Male | Female | Ratio |
|---|---|---|---|---|
| 10–19 | 23.8 | 81 (20.2%) | 14 (3.6%) | 5.8 |
| 20–29 | 32.8 | 118 (29.7%) | 13 (3.2%) | 9.0 |
| 30–39 | 19.0 | 67 (16.8%) | 9 (2.3%) | 7.4 |
| 40–49 | 8.5 | 30 (7.6%) | 4 (1%) | 7.5 |
| 50–59 | 8.5 | 28 (7%) | 6 (1.5%) | 4.7 |
| 60–69 | 4.8 | 15 (3.7%) | 4 (1%) | 3.7 |
| 70+ | 2.2 | 5 (1.2%) | 4 (1%) | 1.2 |
| Average | — | 344 (86.4%) | 54 (13.6%) | 6.4 |

**TABLE 3.** Hanging: Age Versus Month (1993–2003)

| Month | 10–19 | 20–30 | 31–39 | 40–49 | 50–59 | 60–69 | 70+ | Total |
|---|---|---|---|---|---|---|---|---|
| Jan | 7 | 14 | 7 | 3 | 2 | 0 | 1 | 34 |
| Feb | 8 | 5 | 7 | 2 | 2 | 1 | 1 | 26 |
| Mar | 9 | 5 | 9 | 3 | 3 | 2 | 1 | 32 |
| Apr | 8 | 15 | 7 | 2 | 3 | 3 | 1 | 39 |
| May | 9 | 12 | 9 | 5 | 6 | 1 | 1 | 43 |
| Jun | 6 | 12 | 5 | 0 | 3 | 3 | 2 | 31 |
| Jul | 10 | 13 | 5 | 6 | 4 | 1 | 0 | 39 |
| Aug | 13 | 11 | 4 | 4 | 3 | 0 | 0 | 35 |
| Sept | 6 | 7 | 5 | 3 | 0 | 2 | 0 | 23 |
| Oct | 7 | 7 | 5 | 1 | 4 | 2 | 0 | 26 |
| Nov | 7 | 17 | 9 | 3 | 3 | 2 | 1 | 42 |
| Dec | 5 | 13 | 4 | 2 | 1 | 2 | 1 | 28 |
| Total | 95 | 131 | 76 | 34 | 34 | 19 | 9 | 398 |

**TABLE 4.** Hanging: Gender Versus Month (1993–2003)

| Month | Male | Female | Total |
|---|---|---|---|
| January | 28 | 6 | 34 |
| February | 21 | 5 | 26 |
| March | 27 | 5 | 32 |
| April | 37 | 2 | 39 |
| May | 38 | 5 | 43 |
| June | 27 | 4 | 31 |
| July | 31 | 8 | 39 |
| August | 33 | 2 | 35 |
| September | 19 | 4 | 23 |
| October | 24 | 2 | 26 |
| November | 33 | 9 | 42 |
| December | 26 | 2 | 28 |
| Total | 344 | 54 | 398 |

most consistent findings in suicides is the lower rate among women.[17] The increased rate of male suicide is less easily explained. The male preponderance (3.3:1) is found in other kinds of unnatural mortality. Homicide is an offense usually committed by men, with men as their victim. Nearly 50% of the violent and/or traumatic deaths occurred in the 21- to 40-year age group.[18]

The disparity between males and females in suicide rates has been most apparent in this study. Men have a higher risk of suicide than women.[1] The suicide rate in males below 40 years is 7.3 times higher than those over 40 years. The trend in hangings has increased among males from 4.5 per 100,000 to 14 per 100,000 and in females has increased from 0.7 to 2.2 per 100,000 in this study. Gender ratio for suicide was greatest in Sub-Saharan Africa, 4.7:1.[19] It is much higher in this study (6.4:1) (Table 2). The trends noted in other areas of the world are in former socialist economies of Eastern Europe 4.3:1, United States 4.3:1, India 1.2:1, and China 0.9:1. China is the only region where the rate of suicides was higher in females.[19]

There are dramatic gender differences in lifetime risk of suicide in depression. Whereas about 7% of men with a lifetime history of depression will die by suicide, only 1% of women with a lifetime history of depression will die.[20] Although males are more prone to suicide than females, paradoxically females are more likely to become depressed than are males. The predominance of suicide among males may in part be due to the role of alcoholism, for which males are high risk and use violent methods.[21] Women usually use nonviolent methods of suicides.[22] Women are more likely to ingest poisons than men.[20] Women are more likely to hold religious beliefs and negative attitudes towards suicide.[23] Women cope better than men because they are expected to successfully negotiate multiple roles during the lifespan.[24] Women of the Xhosa tribe have a great deal of tolerance in comparison to their male partners from the apartheid era, as they used to look after the children and property during the freedom struggle. Alcohol and drug misuse has risen among females in recent years. Although the total number of suicides among women is small, the rate has increased, just like in the males, 3-fold (Table 1). Females are more likely to retain responsibility for the care of young children, a factor that seems to be protective against suicide.[17]

There is an unexpectedly high rate of hangings (32.8 per 100,000) among young adults between 20 and 29 years in this study. Between 1994 and 1996, in most developed countries the male suicides under 35 years have increased disproportionately.[25] A study by Deykin[26] showed that there is a 2- to 3-fold increase in suicides among young males (15 to 24 years). A study conducted in India in 2003 indicated that young adults belonging to the age group 21 to 30 years were most prone to suicide (25.5%). Overall, the 15- to 30-year age group accounted for 67.7% of suicidal deaths.[27] In this study, three fourths (75.8%) of all victims were below the age of 40 years. A little more than half (56.6%) were less than 30 years. And 23.9% were less than 20 years old. This is in contrast to the picture in some economically developed countries, where the incidence is highest in old age.[28] Financial hardship among young adults was the main underlying reason, identified in 87% victims of suicide in an earlier study in this region.[29]

The incidence is highest in May (43) and minimum in September (23) (Tables 3 and 4). This pattern is not coinciding with the seasonal variation of northern hemisphere countries.[30]

The HIV/AIDS is a new factor that influence suicides. There is extreme variability in suicide and HIV rates across the world.[31] Currently, HIV/AIDS is a major cause of acute depression, and is estimated to be present in 20% of all HIV-positive patients. Depressive disorders are the fourth leading cause of disease and disability and are expected to rank second by 2020.[32] HIV infection is associated with an increased risk of suicidal behavior.[33] Suicidal acts seem to be more frequent in AIDS patients than in the general population.[34] Factors that may contribute to the onset of major depression with HIV include isolation from social supports, occupational disability, and alteration of body image.[35] It has devastating effects in terms of personal and family suffering, and this could lead to suicide.[12] Suicidal inclinations among AIDS patients are extremely common.[36] Suicidal behavior was the reason for consultation in 21.8% of HIV-positive persons and in 19.8% of persons with AIDS in a hospital study carried out by Alfonso et al[37] in 1994.

Suicidal behavior constitutes a major public and mental health problem and a considerable drain on resources in both primary and secondary health care settings. The mystery of suicide is complex, and no single factor could be blamed for it. There is a general belief that illness and other bad occurrences are related to witchcraft. In Xhosa culture, man is expected to be the breadwinner of the family. When they fall sick, this function usually falls on the wife, and they become dependent on the lady. This is sometimes humiliating to the man and may lead to suicide.[38]

In conclusion, suicides by hangings are on the increase. It is also increasing among the younger age groups. There is a 6.4 times higher male preponderance of suicides in this study.

## ACKNOWLEDGMENTS

*The author wishes to thank Dr. George Rupesinghe, Senior Specialist, Department of Family Medicine, Umtata General Hospital, for the assistance given during the preparation of this manuscript.*

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