Suicide in Pretoria: A retrospective review, 2007 - 2010

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Background. The World Health Organization has declared suicide a global health crisis, predicting that ~1.53 million people will commit suicide annually by 2020.

Objective. A study from South Africa reviewed 1 018 suicide cases in Pretoria over 4 years (1997 - 2000). Our study was undertaken to establish whether there have been substantial changes in the profile of suicide victims who died in Pretoria a decade later.

Methods. Case records at the Pretoria Medico-Legal Laboratory were reviewed retrospectively from 2007 to 2010.

Results. A total of 957 suicide cases were identified. Hanging was the most common method of suicide, followed by self-inflicted firearm injury. The true incidence of suicidal intake of prescription drugs/medication was difficult to determine, because of a backlog at the state toxicology laboratories. White males and females appeared to be over-represented among suicide victims, but there has been an increase in suicide among blacks.

Conclusion. Suicide continues to constitute almost 10% of all fatalities admitted to the Pretoria Medico-Legal Laboratory, confirming suicide as a major cause of mortality in our society. Further research is needed to clarify the profile of suicidal deaths, with a view to informing resource allocation and to improve preventive strategies.

Methods

Case records at the Pretoria Medico-Legal Laboratory (PMLL) for January 2007 - December 2010 were reviewed retrospectively. The study was approved by the Faculty of Health Sciences Research Ethics Committee, University of Pretoria (ref. no. 76/2013).

The study was not designed to establish the epidemiological profile and incidence of suicide according to the relevant population denominators for Pretoria. As part of the statutory routine medico-legal investigation of the death process, all unnatural deaths in Pretoria, whether homicide, suicide, accident, natural or undetermined, are admitted to the PMLL. The case files of deceased persons admitted to the PMLL are contemporaneously assessed by the attending forensic medical practitioner (FMP), usually in conjunction with investigating police officers and by making use of information gathered at the scene of death, as well as by considering the medical history and information provided by witnesses (including family members).

After completing the autopsy, a preliminary opinion is then given by the FMP responsible for the case as to the probable manner of death (homicide, suicide, accident, natural or undetermined). However, the classification of a particular case as, for example, homicide or suicide, will ultimately be the function and prerogative of the SA Police Service (SAPS), usually in conjunction with the director of public prosecutions or the inquest court magistrate (as provided for by the Inquests Act of 1959). For the purpose of this study, all cases contemporaneously identified by the FMP responsible for the autopsy as being probably due to suicide, were included. Where suicidal action or intent was not deemed clear or probable, the case was excluded from our study.

In this study, race was used for comparison; race classification was also used in the article by Scribante et al. Race classification was included because it deviates from our norm. The race of suicide victims was identified by how it was presented in the case files, either by their identification (ID) books or by family members, only where
the victim was unknown did the investigator use the race as identified by the FMP during the autopsy.

**Results**

Over the 4-year-span from 2007 to 2010, 9 379 cases were admitted to the PMLL for investigation. Of these, 957 were due to suicide, thus constituting 10.2% of the total case load over the study period. Among the suicide victims, there were 731 (76.4%) males and 226 (23.6%) females. Although racial profiling may be problematic and contentious, 447 (46.7%) victims were black, while 477 (49.8%) were classified as being white, reflecting a ratio of 1:1.07 (Fig. 1). There were only 33 (3.5%) victims who were of Asian race or mixed racial descent.

The ages of the victims ranged from 14 to 88 years, with a mean of 38.31 years. The highest number of victims fell within the age groups 21 - 30 years and 31 - 40 years (Fig. 2). The youngest age group (11 - 20 years) comprised 66 victims, including, inter alia, those who were employed, 40 (10%) were members of SAPS or the SA National Defence Force (SANDF). Of the 957 cases in the study population, 17 (1.8%) committed suicide while in custody, while in 309 (32.3%) of cases no reliable information regarding employment status was available. There were 39 (4.1%) students and scholars among the victims, and 44 (4.6%) pensioners. Of those who were employed, 40 (10%) were members of SAPS or the SA National Defence Force (SANDF). Of the 957 cases in the study population, 17 (1.8%) committed suicide while in custody,

Although the top three methods of suicide were the same among men and women, the order differed, the preferred method among males being hanging, while in women ingestion/overdose was the most common (Fig. 4).

When the data are disaggregated by race and gender, interesting trends appear: 62% of black males who committed suicide did so by hanging, while white males most commonly shot themselves (124; 33.3%). Black females rarely committed suicide (73; 7.6%), of whom most (28; 38.4%) hanged themselves, while white females (144; 15%) most commonly died from ingestion/overdose (45; 31.3%). Among victims of Asian and mixed racial descent, hanging was the most common method of suicide.

Blood was analysed for alcohol in 885 (92.5%) cases; of these, 459 (51.9%) were found to be negative. Among those with positive values, the average blood alcohol concentration was 0.06 g/100 mL, the highest recorded value being 0.92 g/100 mL.

Of the cases where additional information was provided by the next of kin, the following was revealed: 490 (41.8%) of the victims were employed and 165 (17.2%) were unemployed, while in 309 (32.3%) of cases no reliable information regarding employment status was available. There were 39 (4.1%) students and scholars among the victims, and 44 (4.6%) pensioners. Of those who were employed, 40 (10%) were members of SAPS or the SA National Defence Force (SANDF). Of the 957 cases in the study population, 17 (1.8%) committed suicide while in custody,
and only 3 (0.3%) victims were from a psychiatric hospital or similar institution.

In total, 329 (34.4%) victims were reported to have been married at the time of their death, 470 (49.1%) were single, 89 (9.3%) were divorced and 30 (3.1%) were widows/widowers. In 39 (4.1%) cases no marital status was recorded. In 20 (2.1%) cases, the suicide was recorded as having been part of a dyadic death (homicide-suicide event). In five of these latter cases the suicide victims (perpetrators) were members of the police or defence force. In only 12 (1.3%) cases information of a previous attempted suicide was forthcoming. In 123 (12.9%) cases the presence of a suicide note was recorded.

Of 957 suicide victims, 24 (2.5%) remained unidentified after medicolegal investigation.

**Discussion**

The 957 suicide victims (of a total of 9,379 bodies admitted to the PMLL over the study period) constitute 10.2% of the total number of admissions – differing only marginally from the 9.7% reported by Scribante et al.[9] for the study period of a decade earlier. Most of the victims were, once again, males, with a ratio of 3:1 male to female (again similar to the data collected for 1997 - 2000).[9,24,25] When population groups and gender are juxtaposed, a distinct over-representation of white males is noted, with ~25% of all such admissions to the mortuary being suicide victims, while only 9% of black males were admitted because of suicide. Similarly, ~27% of white females admitted to the mortuary were victims of suicide, while only 5% of black female admissions were because of suicide.[9]

The overall population of Pretoria comprises ~75% blacks, ~22% whites and ~3% people of Asian origin and mixed racial descent. These figures (ratios) are also reflected in the total admissions to PMLL (i.e. unnatural deaths from all causes).[20] However, the finding that there are almost equal numbers of suicide victims among white and black population groups suggests that suicide is much more prevalent among white persons. Nevertheless, there has been an increase in the proportion of black suicide victims compared with that in Scribante et al.[9] study, indicating that suicide may be increasing among blacks. The increase in black suicide victims is also noteworthy.

Alcohol was documented to be present in 43.5% of our cases, with an average blood alcohol concentration of 0.06 g/100 mL, which is consistent with that in the previous study.[9] According to Jones et al.,[3] ethanol intoxication is a common finding at autopsy in suicide cases, perhaps because such intoxication results in poor judgement, less inhibition, poor self-control and impulsive behaviour – all of which may predispose to suicide in vulnerable individuals.

Jones et al.[9] stated that information related to e.g. marital status and employment shed light on a possible reason for the suicide, but we could not verify this. An interesting observation is that 25% of dyadic death incidents were committed by members of the SAPS and SANDF. This appears to be in keeping with data published by Jena et al.[26] in 2009 for dyadic deaths in Pretoria, from 1997 to 2001. Our study had a number of limitations. Firstly, there were changes to the geographical feeding area/catchment area of the mortuaries in the greater Pretoria area; an epidemiological profile could consequently not be created. Secondly, some of the suicide cases could have been omitted because the suicidal action or intent was not deemed clear or probable. Lastly, some toxicology information was still outstanding when this research was done.

**Conclusion**

These results show that the incidence of suicide as a percentage of the caseload at the PMLL has remained almost unchanged over the past decade (~10%).[9] However, significant changes appear to have taken place with regard to the methods used, with a substantial decrease in firearm-related suicides, but with an apparent parallel increase in hangings. The possibility exists, as mentioned in the article by Matzopoulos et al.,[27] that the latter may reflect changes brought about by the introduction of the Firearms Control Act No. 1 of 2000 in the interim period, but this needs to be studied further. White males continue to be heavily over-represented as victims of suicide in Pretoria, but suicidal deaths currently appear to constitute an increasing percentage of deaths among black people admitted to the PMLL. More studies are needed, especially taking into account population denominators, to further expose the profile of suicide as a cause of death in our society.
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