

Reflections on trauma and violence-related deaths in Soweto, July 1990 - June 1991

J. Byarugaba, D. Kielkowski

This is a retrospective analysis of 5 600 deaths registered in Soweto from July 1990 to June 1991. The impact of trauma and violence on the overall mortality pattern was assessed. The majority of deaths occurred in people under the age of 50 years and more men died than women. In 40% of male deaths, the cause was stated as 'ill-defined' or 'unknown'; this was the case in an even higher percentage of female deaths (50,5%). Trauma or violence accounted for 28,5% of all deaths. The gender difference was particularly visible in the trauma category, viz. 89,5% and 10,5% in men and women respectively. Young men (20 - 29 years) were particularly affected by trauma and violence-related deaths (38,5%). The major types of injuries inflicted were gunshot wounds (33%), unspecified multiple injuries (32%) and stab wounds (27%). Motor vehicle accidents accounted for only 8% of deaths. The urgent need for intervention programmes to prevent unnecessary loss of life, targeted especially at young adults and children, is highlighted.

S Afr Med J 1994; **84**: 610-614.

Soweto (an acronym for South-Western Townships) was established in 1939 and is the largest black township in South Africa. It covers an area of approximately 660 hectares and is situated 15 km south-west of Johannesburg. Soweto's historical, geographical and demographic characteristics are probably similar to other rapidly expanding urban and peri-urban townships. Such rapid urbanisation has resulted in many public health problems.

Department of Health, Soweto City Council and Epidemiology Unit,
National Centre for Occupational Health and Department of
Community Health, University of the Witwatersrand, Johannesburg

J. Byarugaba, M.B. CH.B., M.P.H.

D. Kielkowski, M.Sc.

The population of Soweto is estimated to be 2 - 3 million. Independent groups, however, have made much lower estimates of between 1 195 000 and 1 740 000.¹ It is probable that many of Soweto's inhabitants are migrant labourers or part of the migrating population from rural areas. The rapid rate of urbanisation and population influx, which has accelerated since 1985, is due to relaxed population influx control measures. This has resulted in chronic housing shortages, overcrowding of hostels and the appearance of transit squatter camps, which have increased the number of settlements without basic sanitation services.

Epidemiological surveillance of the problems in these communities is essential. Mortality and morbidity data provide information for rapid epidemiological assessment but such data may be of poor quality, unreliable and/or poorly representative of the population studied.²⁻⁵ Several recommendations have been made to improve mortality data in particular.^{3,4,6}

The critical reviews indicate that information regarding cause of death is of poor quality and completion of death registration (numbers of deaths) may not be adequate for public health decision-making. Yach *et al.*⁷ state, however, that these data, despite limitations in respect of quality, allow for public health planning and interventions.

The impact of violence as a cause of death or disability was recently discussed in the South African literature.⁸⁻¹¹ Violence is a major preventable cause of death.⁷ The 'psychopathology of violence' in the context of social and political repression/oppression was well described.^{12,13} The need to study 'causes' of violence cannot be overemphasised. The present study aims to describe mortality patterns in Soweto with the emphasis on violence-related deaths.

The objectives of this study were to (i) determine common causes of mortality among adult residents of Soweto; (ii) analyse unnatural causes of death; and (iii) comment on the quality of mortality data.

Population and methods

Deaths of adult Soweto residents registered from July 1990 to June 1991 were analysed. The sources of data were death certificates or death registers from regional offices of the Department of Home Affairs, and records of the Soweto mortuaries.

A trained clerk transcribed relevant information such as the deceased's age, gender, place of residence and cause of death. Causes of death were classified according to major categories of the International Classification of Diseases (ICD).¹⁴ Further ICD subclassification for trauma deaths was not possible due to poor medical information and insufficient detail. ICD coding requires details of the nature of the injury (e.g. suicide, homicide), the body part affected and the way in which the injury was inflicted (e.g. knife, drowning, rockfall). 'Open fracture of skull, gunshot, homicide', for example, is the correct description of the death of a person who was purposely shot. The amount of detail available allowed only for the following crude classification of injury type: gunshot wound (GSW), stab wound (STW), motor vehicle accident (MVA), and unspecified multiple injuries (UMIs).

The data were analysed with the EpiInfo programme.¹⁵

Age and gender distribution of cases

The distribution of cases is presented in Table I. Of the 5 600 registered deaths, 65,4% were male. Forty per cent of male deaths occurred in the under-40 age group compared with 15,6% in women. The highest proportion of male deaths occurred in the 20 - 29-year age group; in women the highest proportion was in the 60 - 69-year age group. Deaths among men declined with age in direct contrast to women. This linear trend in proportions is statistically significant ($\chi^2 = 398$; $df = 4$; $P < 0,00001$).

Table I. Age and gender distribution of cases

Age group	Males		Females		Total	
	No.	%	No.	%	No.	%
15 - 19	173	4,7	30	1,6	203	3,6
20 - 29	718	19,6	107	5,5	825	14,7
30 - 39	572	15,6	166	8,6	738	13,2
40 - 49	472	12,9	176	9,1	648	11,6
50 - 59	466	12,7	285	14,7	751	13,4
60 - 69	490	13,4	411	21,2	901	16,1
70 - 79	409	11,2	408	21,0	817	14,6
80 +	150	4,1	208	10,7	358	6,4
Unknown	211	5,8	148	7,6	359	6,4
Total	3 661		1 939		5 600	

The observed differences in age-specific mortality in respect of gender support the suspicion that the excess of deaths of young males is due to causes other than natural disease processes.

Causes of death

The majority of deaths (40,0%) were of ill-defined or unknown cause (Table II): violence, trauma and accidents caused the second-highest proportion of deaths (28,5%). Of the remainder, 9,9% were due to diseases of the circulatory system, 6,1% to neoplasms and 5,5% to diseases of the respiratory system. Infectious and parasitic diseases accounted for 3,1% of deaths.

Table II. Cause of death in adolescents and adults from July 1990 to June 1991

Cause	Males		Females		Total	
	No.	%	No.	%	No.	%
Infections and parasitic disease	96	2,6	76	3,9	172	3,1
Neoplasm	208	5,7	131	6,8	339	6,1
Endocrine*	44	1,2	54	2,8	98	1,8
Nervous system	36	1,0	19	1,0	55	1,0
Circulatory system	268	7,3	288	14,9	556	9,9
Respiratory system	193	5,3	117	6,0	310	5,5
Digestive system	85	2,3	57	2,9	142	2,5
Genito-urinary system	46	1,3	49	2,5	95	1,7
Ill-defined, unknown	1 257	34,3	981	50,6	2 238	40,0
Violence/trauma/accidents	1 428	39,0	167	8,6	1 595	28,5
Total	3 661		1 939		5 600	

*Diseases of the endocrine system (nutritional, metabolic, immunity disorders) blood and blood-forming organs, mental (ICD chapter III, IV, V) were grouped together.

There were substantial differences in the distribution of causes of mortality according to gender ($\chi^2 = 32,46$; $df = 8$; $P = 0,0001$). This was especially evident for causes such as violence and trauma, viz. 39% in men and 8,6% in women; a statistically significant 4,5-fold difference. A man had a relative risk of 4,53 of dying as a result of violence or trauma (95% CI = 3,90 - 5,26) compared with a woman. Among women there was a 16% increase in deaths classified as of ill-defined or unknown cause in contrast to men. In both instances, it is unacceptable that most deaths are of unknown cause; this imposes a severe limitation on the data. An unexpected finding was that twice as many women died of circulatory diseases than men, but a high proportion of these deaths may have been due to other circulatory diseases such as hypertension and cerebrovascular disease, which accounted for the majority of deaths among females in the circulatory group, and are classified cerebrovascular accidents.

Trauma and specific violent causes of death

This article defines trauma as all external causes of death, including accidental or inflicted injuries. In the trauma category, 1 595 deaths occurred; 89,5% were of men and 10,5% of women. The type of trauma in relation to gender is shown in Table III. In women, the trauma took the form of UMIs (41,3%), GSWs (24,0%), MVAs (17,4%) and STWs (17,4%). The most common forms of injury in men were GSWs (34,6%), followed by UMIs (31,0%), STWs (27,7%) and MVAs (6,7%).

Table III. Trauma deaths

Injury	Males		Females		Total	
	No.	%	No.	%	No.	%
Gunshot wounds (GSWs)	494	34,6	40	24,0	534	33,5
Unspecified multiple injuries (UMIs)	442	31,0	69	41,3	511	32,0
Stab wounds (STWs)	396	27,7	29	17,4	425	26,7
Motor vehicle accidents (MVAs)	96	6,7	29	17,4	125	7,8
Total	1 428	89,5	167	10,5	1 595	100

'Violent cause of death' includes injuries such as GSWs and STWs. Ideally, blunt instrument injuries and other forms of inflicted injury should be included. However, the quality of the data did not allow for this distinction. Violent cause of death accounted for 62,3% of injuries to men and 41,3% to women, indicating that, although women are less likely to die of unnatural causes, a high percentage of deaths could still be attributed to violence. This is a conservative estimate in view of the limitations of the data. The category, UMIs, is mixed and includes deaths due to violence and accidents other than MVAs. This makes it difficult to estimate the number of these deaths that could be attributed to violence. The actual proportion of deaths due to violence is probably higher than that reported in this article. Because of the high prevalence of trauma in men, misclassification of deaths is more common in men than women.

Fig. 1 shows injury type in relation to age. GSWs cause the most deaths in the two youngest age groups; this trend declines to 15,6% of all trauma deaths in those above 60 years. This age trend for GSWs is statistically significant ($\chi^2 = 40,90$; $P = 0,00001$). The proportion of UMIs increased with age, with the biggest increase in the 60 years and over age group ($\chi^2 = 51,87$; $P = 0,000001$). Most deaths occurred in the 20 - 29-year-old group. If one assumes that GSWs and STWs are violence related, and MVAs are accidental deaths, then 71,1% of deaths among people in their 20s were violence related. This is a very conservative estimate as 20,9% of deaths in this group were ill-defined. MVAs contributed only 7,8% to all injuries, the proportion increasing with age. STWs were highest in the 20 - 29-year group (30,1%) but the age trend, although less evident, remains statistically significant ($\chi^2 = 10,14$; $P = 0,001$).

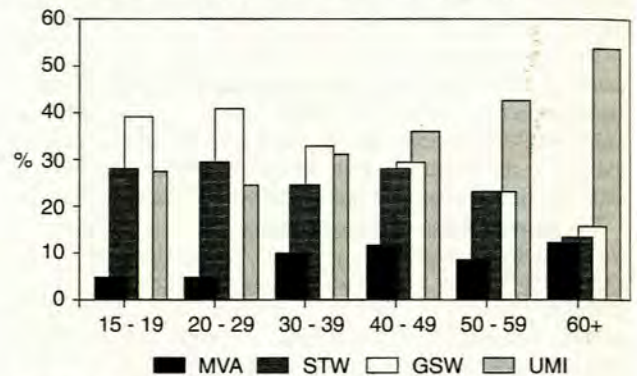


Fig. 1. Distribution of trauma in respect of age group.

Trauma deaths, analysed according to month of occurrence, are presented in Fig. 2. The authors acknowledge that these data are not suitable for seasonal trend analyses. Fig. 2 shows that most deaths (61,2%) occurred in the period from July to December 1990 (line graph). Peaks occurred in August, September and December. A fourth, lower peak was observed in May 1991. The number of GSWs as a proportion of injuries (solid bar) was stable for the first 3 months (31,2 - 32,8%). In October the proportion peaked at 45,6%. The lowest percentage of GSWs was observed in December with a slight increase in January. From February GSWs steadily increased to a second peak in May 1991. Multiple injuries (clear bar) formed approximately one-third of injuries, increasing in January, February and June. MVAs as injuries (striped bar) contributed very little to all trauma deaths.

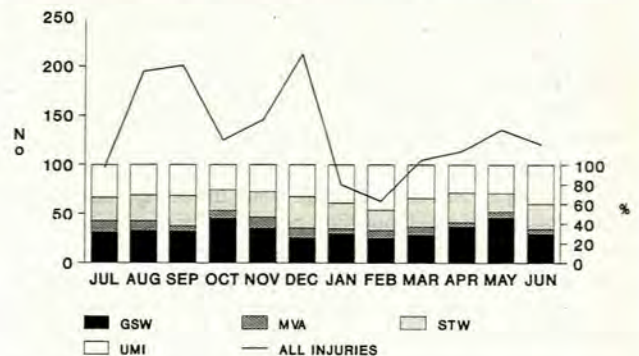


Fig. 2. Distribution of trauma in respect of month and type of injury.

Interestingly, STWs are proportionally highest in December (32% of injuries). The festive season, when the highest number of trauma deaths occurred (213), is a period of high alcohol consumption resulting in fights, brawls and STWs (dotted bar).

It is difficult to determine the numbers of politically instigated violent deaths. Media reports of political violence around Johannesburg in the period from August to December 1990 noted that there were 25 deaths in Bekkersdal (11 Nov 1990, *City Press*), 49 in the Zonkezizwe squatter camp in November 1990 and 52 in the Pola Park squatter camp in December.¹⁶ It is unlikely that these were isolated events; many similar deaths may also have occurred in Soweto. The Human Rights Commission Area Repression Report for September 1990 lists 46 people killed in various incidents in Soweto (railway violence, fighting between residents and hostel dwellers, vigilante groups, etc.).¹⁷

Discussion

The results presented in this paper are cause for great concern from a public health point of view. Firstly, the quality of data, in respect of actual causes of death, is too poor for meaningful interpretation. Causes of death specified as natural accounted for 34% of deaths in men and 50% in women. This is comparable with the 50% of deaths certified by police as being of natural causes in the Port Elizabeth area in 1989.¹⁸ An additional 32% of trauma cases were not adequately specified.

Although the emphasis of this paper is on trauma as cause of death, diseases of urbanisation require some comment. Circulatory disease accounted for 9.9% of deaths in this study, of which 39.4% were due to cerebrovascular disease. This is a similar finding to that reported by Wyndham in 1982.¹⁹ The factors associated with ischaemic disease, viz. smoking and diet-related factors such as hypercholesterolaemia, are present in urban blacks. The prevalence of ischaemic heart disease, however, remains low.^{6,19} In contrast, among rural blacks, Bac²⁰ reports that most deaths are due to infectious diseases such as tuberculosis, pneumonia and gastro-enteritis. Thus, the pattern of disease in urban blacks is changing to one with more non-communicable causes of death.

Violence-related deaths accounted for 959 (60%) of all trauma deaths and, as mentioned, this is probably an underestimate due to the poor quality of the data. If one assumes that the pattern of deaths in the UMI category resembles that of specific causes (GSW, STW, MVA), then an additional 171 deaths could be attributed to GSWs and 136 to STWs; only 20.5% of trauma would be due to MVAs and other accidents.

The age group particularly affected by trauma is the 20 - 39-year group (63%), viz. young productive adults supporting their families. This constitutes a great loss to the community. Adolescents (15 - 19-year-olds) contributed 9.4% to all trauma deaths with only 6 deaths in this category attributed to MVA.

Trauma and violence have become endemic in Soweto. Police unrest reports and newspaper accounts of crime and politically or gang-motivated intimidation of the communities are abundant. In a recent study in the Qumbu district of

Transkei, it was found that youths had the highest trauma incidence and that the most commonly used weapons were knives. This explains why STWs were predominant (J. M. Wassawa — personal communication). Studies in other developing countries report a much lower incidence of deaths due to trauma and violence. Lopez²¹ states that only 5% of deaths due to trauma and violence would be expected in the populations of other developing countries. This is in striking contrast to the data presented in this study, which suggests violence of epidemic proportions. It is tragic that 73% of trauma deaths are of people below the age of 40. Some of these deaths could certainly be avoided by community outreach programmes for adolescents and adults. The availability of and easy access to firearms in the townships might be a contributory factor to violence, especially among the militant youth involved in high-risk behaviour.

MVAs are responsible for a very low proportion of deaths, only 7.8% in the trauma category. Community programmes addressing safe road crossing and driving practices are needed, but would have a relatively low impact on the overall number of trauma deaths.

South Africa is in a transitional state, with an uncertain future and an ailing economy. The mortality patterns of Soweto are an illustration of the political struggle in which ordinary people are caught up.

The authors acknowledge the limitations of the data as a result of the poor quality of diagnoses (e.g. natural, ill-defined causes and multiple injuries). The number of deaths specified by the police as due to natural causes may diminish with the new Births and Deaths Registration Act (No. 51 of 1992)²² which stipulates that only medical doctors are allowed to certify death. The completeness of death registration, however, will have to be assessed in the future. In the new registration Act, unnatural causes of death will not be specified and interested parties will have to approach government mortuaries and magistrates to obtain more information.

Validation of poor records was not attempted due to the sensitive nature of the inquiry and the practical problems of locating the next of kin. The data presented may have been incomplete since the larger funeral directors send their own records of natural deaths to Pretoria.

Recommendations

1. Additional research into violence is needed to determine primary, secondary and tertiary trauma prevention measures. This can be achieved only by means of a multidisciplinary approach.

2. The World Health Organisation has suggested active surveillance by lay people in the community to gain a better understanding of violence.

3. Community upgrading programmes, such as improved housing, sanitation, schools, sports facilities and community centres for young people, could improve the quality of life and social dynamics of the community. A reduction of the unemployment rate could also decrease conditions leading to violence. Acceptance of political differences and greater community participation are needed to assure the success of such programmes.

It is hoped that this report will stimulate interest and initiate community outreach programmes to help prevent the unnecessary deaths of young adults. Additional research is needed to understand the underlying aspects which relate to the causes of violence in the community.

The authors thank Drs D. Yach (MRC) and E. N. Khomo (MOH, Soweto), Ms M. de Beer (Johannesburg City Council), and Mr A. Butchart (Psychology Unit, UNISA) for their critical comments. We also thank M. H. Moeti for computerisation of the data.

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Accepted 7 Jun 1993.