

PATTERN OF ROAD TRAFFIC ACCIDENT DEATHS: A CRITICAL AUTOPSY ANALYSIS IN KENYA

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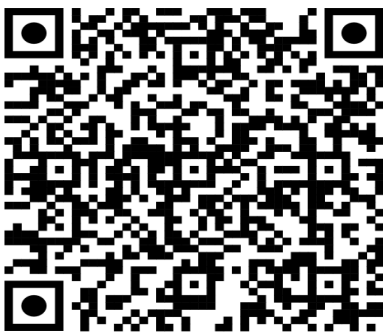
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Abstract

This study investigated fatalities resulting from Road traffic accidents to inform public health policy on the need for their prevention. This is a descriptive prospective study of road traffic accident deaths in Nairobi; of all the bodies brought at the city mortuary Nairobi in the period between June 1 2009, and May 31 2010. In this study, all cases of deaths from road traffic accidents for twelve consecutive months were included. Data was entered on a proforma datasheet. Data was analysed using SPSS. The study concluded that the major contributor of Accidental deaths is road traffic accidents. Furthermore, road traffic accident fatalities significantly involve pedestrians compared to the other class of people. Fatalities from road traffic accidents are a preventable public health problem in Kenya. The study recommends that the driving habits in Kenya be regulated to prevent these fatalities.

Key terms: Road traffic accidents, autopsy, deaths, public health policy, Nairobi, Kenya.

1.0 INTRODUCTION

Violence causing fatal trauma to the body, the commonest cause of unnatural death, is a preventable leading global public health problem. Violent deaths are categorized as those due to homicide, accidents or suicide. In the United States, violent deaths from suicides, homicides, and accidents are the leading cause of death of people aged 1-39 years (Abel & Zeidenberg, 1985). Accidental deaths are categorized into two broad categories; those resulting from road traffic accidents and others, fatalities passengers, Drivers and cyclists (Akhiwu et al., 2000 & Azmak, 2006). The worldwide prevalence of road traffic accidents is 20.8 per 100,000; it is highest in the United States of America 12.3 per 100,000. Accidents resulting from road traffic accidents are further classified based on class of persons involved i.e. Pedestrians, PA Africa it is highest in Mozambique 34.7 per 100,000 and lowest in Burundi 23.4 per 100,000, (Gouda & Aramani, 2010). The prevalence of fatal road traffic accidents in Chitwan Nepal is 47 % (5), Maputo Mozambique, 43.7% (Karn et al., 2011), in Kenya the prevalence is 34.4 per 100,000 (Kinyanda et al., 2004) and in Northern Norway, 18.6% (Kumar et al., 2005).

2.0 LITERATURE REVIEW

Violence was declared by the World Health Assembly as a leading global public health problem. This declaration acknowledged the necessity of implementing a global strategy to address violence as a health issue that can be prevented. The first step toward building the foundation necessary to control and prevent violence is describing the magnitude and nature of the problem in the individual countries (WHO 1999, 2000). In Africa studies indicate that violence rates may be much higher than in the rest of the world and that there is also considerable variation in homicide rates between different urban centers (Violent deaths in South Africa, the 2003 National Injury Mortality Surveillance System published quarterly No 13,2005). Violence related deaths are associated with alcohol intoxication (Abel et al., 1985).

Preliminary studies in Nairobi, on fatalities in road traffic accidents show that 15% of all fatalities in road traffic accidents are alcohol related (Kiama, 2008). In the United States, violent deaths from suicides, homicides, and accidents are the leading cause of death of people aged 1-39 years (Krug et al., 1998). A significant proportion of the violence related deaths worldwide are associated with alcohol (Parry et al., 1998). In Finland over 20 % of the violent deaths are alcohol-related, with differences in epidemiologic patterns and trends for different types of violent death between sexes and age groups (Philippe et al., 2001).

The prevalence of fatal road traffic accidents is reported highest in Chitwan, Nepal, 47 % (Prasad et al 2003), Maputo Mozambique, 43.7% (Hanifa et al., 2006) and lowest in Northern Norway, 18.6% (Nordrum et al., 1998). Various studies demonstrate that violent deaths predominantly involve the male. The prevalence is 93.3% In Dar es Salaam Tanzania (Out Water et al., 2008), 82.6% in Northern Norway (Nordrum et al., 1998), 60 % in Manipal, Southern India (Mohan et al., 2006), however one study reveals female predominance 73 % in Trakya, Turkey (Derya et al., 2006).

Majority of studies reveal that as regards to violent deaths, the age group 21-40 years is the most dominant, (Eugene et al., 2004); 20-24 years is 31% (Virenda et al., 2005); 20-39 years is 63.6%,

(Hilal et al., 2005); 21-40 years is 72.7% (Derya et al., (2006); 21-30 years is 27% (Moharty et al., 2007) 21-30 years is 34% (Gouda et al., 2010); 21-30 years is 32.5% (Karn et al., 2011) and 21-40 years is 52% (Virenda et al., 2005). Suicide, homicides, motor vehicle crashes and other violent deaths and injuries are linked inextricably to alcoholism (Lowenstein et al., 1990). It is well established that use of alcohol increases the risk of fatal injuries. Blood alcohol concentration >50 mg /100ml was found in 47.6% of violent deaths, amongst which 93% of these BAC was \geq 100mg/100ml (Nordrum et al., 2000).

Alcohol was found in the blood of the homicide victims (Hilal et al., 2005). This study has also established a strong connection between acute inebriation, alcohol addiction and suicides (Bilban et al., 2005). Alcohol is involved to a considerable extent in all major categories of violent deaths for all age cohorts especially for road traffic victims aged 35 years and under. Moreover, this study indicates that 48.6% of the traffic accidents, the victims had been drinking, 45.2 % of homicides and 35.4% of suicides. Distribution by age group; 15-19 years 42.7% of violent deaths were alcohol related while in the age groups 20-24 ,25-34,35-44 and 45-54 years the finding was 51.1%, 48.6%, 49.1% and 47.2% respectively (Abel et al., 1985). Most drivers involved in fatal accidents have measurable alcohol in their blood stream (McCoy et al., 1989). Alcoholism rather than merely social drinking is involved in the case of deceased drivers with very high alcohol concentrations (Carroll et al., 1962). Many of the drivers and passengers that consumed alcohol had injuries that were more rapidly fatal (Sevit et al., 1973).

3.0 METHODS

Study Design, Methodology and Setting

This was a descriptive prospective study of road traffic accidents deaths in Nairobi from June 1, 2009 –May 31, 2010. It was carried out at City Mortuary, Nairobi. City mortuary is the largest mortuary in a Nairobi, situated at the junction of Mbagathi Way and Ngong road. The City Council of Nairobi runs the morgue. The Ministry of health is also involved by way of hiring the pathologists who provide the services. The morticians are however hired by the Nairobi City Council. This mortuary receives approximately 200 bodies of unnatural deaths every month. It is the main centre for medico legal autopsies in Nairobi.

Study subjects

The subjects of the study were selected at the City Mortuary as follows: The study subjects were recruited consecutively and this was for a period of one calendar year. All bodies that were as a result of violent injuries, to calculate prevalence of road traffic accidents in Nairobi were included in the study. Bodies that were badly decomposed and the cause of death could not be ascertained were excluded from the study.

Ethical Issues

Approval for the study was sought and granted from the Kenyatta National Hospital Ethics and Research Committee (REF: KNH/UON-ERC/A/196). Authority to conduct the study was sought from the Medical Officer of health, Nairobi City Council and permission obtained from the Superintendent and pathologist in charge of the city Mortuary. The conduct of the autopsies was professional adhering to ethics that include consent from the relatives and confidentiality of the information gathered

4.0 RESULTS AND DISCUSSION

Out of 2,566 autopsy cases in one year, between June 1 2009 and May 31 2010, One thousand and sixty-four, 1064 (43.6%) deaths were due to accidents. Among the accidents, road traffic accidents contributed 87.3% with pedestrians being the majority at 46.9%. A p-value of 0.03 (95% confidence interval) was found when the data was analysed using an F-test. This was a statistically significant difference ($p=0.03$) between violent death and alcohol intoxication.

Table 1: Distribution of deaths by categories, in Nairobi Kenya

Cause	Total %
Violent deaths	95.2
Natural Death	3.2
Unascertained	1.6
Total	100

According to the distribution of deaths by categories in Nairobi Kenya, 95.2% were due to violent deaths, 3.2% were due to natural death, and 1.6% were due to unascertained causes (Table 1).

Table 2: Distribution of Violent deaths by category in Nairobi Kenya

Cause of Death	Numbers	%
Homicide	1154	47.3
Accident	1064	43.6
Suicide	224	9.1
Total	2442	100

The causes of death were distributed amongst all the known causes of violent deaths, namely; homicide 47.3%, accidents 43.6% and suicide 9.1 %. (Table 2).

Table 3: Distribution of accident cases in Nairobi Kenya

Accidents	Number	%
Road Traffic Accident	929	87.3
Other accidents	135	12.7
Total	1064	100

Road traffic accidents comprised 43.6% of violent deaths. The accidents were caused by road traffic accidents 87.3%, while other accidents were 12.7 %. (Table 3).

Table 4: Distribution of road traffic accidents cases by class in Nairobi Kenya

Categories of Road Traffic Accidents	Number	%
Pedestrian	436	46.9
Cyclist	234	25.2
Passenger	214	23.0
Drivers	45	4.8
Total	929	100

Deaths from road traffic accidents by class comprised pedestrians 46.9%, cyclists 25.2%, passengers 23.0% and drivers 4.8 %. (Table 4).

In this study, 43.6% of violent deaths (35.5 per 100,000) were due to accidents, this result compares well with Maputo City where accidents comprised 59.4 % (Karn et al., 2011). Durban North 67 per 100,000 and Durban south 35 per 100,000 (Mohan & Yoganasimha, 2006). Manipal Southern India 71% (Mohanty et al., 2007) and Jos Nigeria accidents reported at 45% (Nordrum, 1998).

Road Traffic accidents

In the current study, road traffic accidents contributed 87.3 % (31 per 100,000). This is much higher than that at Windsor area 0.43 per 100,000 (Out water et al., 2008). Northern Norway 18.6% (Kumar et al., 2005), Maputo City 43.7% (Karn et al., 2011), Belgaum Karnataka at 56% (Prasad & Prasad, 2003), Transkei 35%, 63 per 100,000 (WHO, 1999), Manipal Southern India 37 % (Mohanty et al., 2007), Addis Ababa, 80% (WHO, 2002). Furthermore, deaths from road traffic accidents by class indicated that pedestrians were the most involved at 46.9% followed by cyclists at 25.2%. Those in the motor vehicles passengers were the most affected at 23.0%. On the other hand, drivers' contribution was minimal at 4.8%.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions: According to this study, the major contributor of accidental deaths is road traffic accidents. Further, road traffic accident fatalities significantly involve pedestrians compared to the other class of people. Fatalities from road traffic accidents are a preventable public health problem in Kenya.

Recommendations: The study recommends that the driving habits in Kenya be regulated to prevent these fatalities.

6.0 REFERENCES

1. Abel, E. L., & Zeidenberg P. (1985). Age, Alcohol and Violent Deaths: A Post a post-mortem study. *J. Stud Alcohol*, 46(3), 228-31.
2. Akhiwu, W. O., Nwosu, S. O., & Aligbe, J. U. (2000). Homicide and Suicide in Benin City, Nigeria Anil Aggrawal's Internet. *Journal of Forensic Medicine and Toxicology*, 1(2). https://www.anilaggrawal.com/ij/vol_001_no_002/paper001.html
3. Azmak, A. D. (2006). Suicides in Trakya Region, Turkey, from 1984 to 2004. *Medicine, Science and the Law*, 46(1), 19–30. <https://doi.org/10.1258/rsmm.1.46.1.19>
4. Derya, E. L. (2006). Suicides in Trakya region, Turkey from 1984-2004: *Medicine, Science and the Law*, 46 (1) 19-30.
5. Eugene, D. O. (2004). Deliberate self-harm as seen in Kampala, Uganda. A case control study: *Social Psychiatry and Psychiatric Epidemiology*, 39, (4), 38-325.
6. Gouda, H. S., & Aramani, S. C. (2010). Analysis of Medico-Legal Autopsies-A 6 years Retrospective Study: Indian Internet Journal of Forensic Medicine & Toxicology, 8(1).
7. Hanifa, E. L. (2006). Mortality due to Injuries in Maputo City, Mozambique: *International Journal of Injury Control and Safety Promotion*, 13 (1). 1-6.
8. Hilal, F. E. (2005). Homicide in Adana, Turkey: A 5-Year Review. *American Journal of Forensic Medicine & Pathology*, 26(2), 141-145.
9. Karn, A., Jha, S., Yadav, B. K., & Thakur, D. (2011). Medico-legal study of suspected Homicide Cases in a Teaching Hospital in Eastern Nepal. *Health Renaissance*, 9(1), 15-19.

10. Kiama, W.P. (2008). *Alcohol related Deaths amongst Drivers, Passengers, Pedestrians and Cyclists in Nairobi*. Thesis, University of Nairobi.
11. Kinyanda, E., Hjelmeland, H., & Musisi, S. (2004). Deliberate self-harm as seen in Kampala, Uganda -a case-control study. *Soc. Psychiatry Psychiat. Epidemiol.*39 (4), 318-25. DOI: 10.1007/s00127-004-0748-2. PMID: 15085335.
12. Krug, E., Powell K. E. & Dahlberg, L. L. (1998). Firearm-related deaths in the United States and 35 other high- and upper-middle-income countries. *Int J Epidemiol*, 27 (2), 14-21.
13. Kumar, V., Li, A. K., Zaniel, A. Z., Lee, D. A., & Salleh, S. A. (2005). A study of homicidal deaths in medico-legal autopsies at UMMC, KualaLumpur. *Journal of Clin. Forensic Med.*12 (5), 254-7. DOI: 10.1016/j.jcfm.2005.02.007.
14. Lowenstein, L. (1990). Alcohol intoxication, injuries, and dangerous behaviors—and the revolving emergency department, *door, J Trauma*. (10), 1252-8
15. McCoy, E. (1989). A review of fatal road accidents in Oxfordshire over a 2 year period: The Oxford Road Accident Group, *John Radcliffe Hospital, Oxford UK*, 20(2), 65-68.
16. Mohan, K. T., Kanchan, T., & Yoganarasimha, K. (2006). Profile of Unnatural Deaths in Manipal, Southern India 1994-2004. *Journal of Forensic and Legal Medicine*, 13(3), 117-120.
17. Mohanty, S., Sahu, G., Mohanty, M. K., & Patnaik, M. (2007). Suicide in India-A four-year retrospective study. *Journal of Legal and Forensic Medicine*, 14(4), 185-189.
18. Nordrum, I. S. & Eide, T. J. (2000). Alcohol in a series of medico-legally autopsied deaths in Northern Norway 1973-1992. *Forensic Science Int.*, 110(2), 127-37.
19. Nordrum, I. S. (1998). Medicolegal Autopsies of Violent Deaths in Northern Norway 1972-1992. *Forensic Science International* 92(1), 39-48.
20. Out water, A. H., Campbell, J. C., Mgya, E., Abraham, A. G., Kinabo, L., Kazaura, M., & Kub, J. (2008). *Risk and Protective Factors for Homicide Death in Dar es Salaam, Tanzania 2005*. The Johns Hopkins University, 264, 3309805.
21. Parry, C. D. H. (1998). *Substance abuse in South Africa*. Country report prepared for World Health Organization (WHO) focusing on young persons. 1-26.
22. Prasad, B. K., & Prasad, C. (2003). Road Traffic Accident (R.T.A) as Major Killer: A Report on Medico-Legal Autopsies in Bharatpur Hospital. *Kathmandu University Medical Journal* 1(1), 34-35.
23. Virenda, K. O. (2005). A study of homicidal deaths in medico-legal autopsies at UMMC. *Kuala Lumpur*, 12(5), 151-154.
24. World Health Organization (WHO). (1999). *Injury: A Leading Cause of the Global Burden of Disease*.
25. World Health Organization (WHO). (2002). *World Report on Violence and Health*.