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DOMESTIC ACCIDENTAL DEATHS IN THE NIGER DELTA REGION, NIGERIA

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ABSTRACT

Background: Domestic accidental deaths constitute a public health burden in the Niger Delta Region of Nigeria. This study is aimed at highlighting this public health burden.

Objective: This study is aimed at highlighting this public health burden.

Design: A six year retrospective study using mortuary records.

Setting: University of port Harcourt Teaching Hospital, Port Harcourt, Nigeria.

Patients and Methods: Coroner's forms data were used from University of port Harcourt Teaching Hospital anatomical pathology department, which is the foremost health institution in the region serving a core population of about six million people.

Results: Eighty three domestic accidental deaths seen at the University of Port Harcourt Teaching Hospital in the Niger Delta Region of Nigeria between January 1995 and December 2001 were analysed. The 83 deaths occurred in 63 males and 20 females, giving a ratio of 3:1, between the ages of six months and 86 years. There was a bimodal age distribution, with 20 cases (24.1%) occurring in preschool age children, and 22 cases (26.5%) occurring in the elderly over 70 years. Fifty one deaths (61.4%) occurred in the urban areas, while 32 cases (36.8%) occurred in the rural areas. Seventeen cases (20.5%) occurred from falls from height or same level, thereby, constituting the commonest mechanism of injuries that lead to death in the elderly. In children, the commonest mechanism of injuries leading to death was poisoning. The yearly incidence of these deaths is decreasing with the peak of 26.5% in 1995, and 6.0% in 1999.

Conclusion: Enforceable legislation by government coupled with public education to reduce occurrence should be encouraged. Safety at home must be taken very seriously.

INTRODUCTION

Domestic accidents are a common public health hazard worldwide(1-3). Some 20 years ago, a study from Nigeria (4) showed that deaths from domestic accidents affecting all age groups, were prominent. Other studies have shown that the preschool age and the elderly are particularly susceptible(5,6). Some of the factors leading to domestic accidental deaths include burns, falls, poisoning, gunshots, electrocution, collapsing walls, plastic bag accidents, drowning, unsafe sleeping environment, overlying, animal bites and aspiration of foreign bodies(7-9). In Britain and the United States of America, falls from height and at the same level, constitute the commonest cause of deaths(9). Predisposing factors include age, arthritis, postural instability, poor vision, dizziness and lack of proper supervision of kids(6) among others.

The Niger Delta Region of Nigeria has recently become busy with oil exploration activities, in contrast to the hitherto predominant day to day activities of fishing and farming. The University of Port Harcourt Teaching Hospital (UPHTH) is the foremost tertiary health institution in the region and receives a major share of accidental deaths often for coronal services.

The core population serviced by the hospital is approximately six million people.

The clinical characteristics of domestic accidental deaths brought to the University of Port Harcourt Teaching Hospital mortuary for coroners' autopsy are reported below in this study.

MATERIALS AND METHODS

The mortuary records at the Anatomical Pathology Department of University of Port Harcourt Teaching Hospital from January 1995 to December 2001 were examined. Deaths recorded to have occurred in the home environment were extracted for further analysis.

Coroners' request forms were used to extract data including age and sex of victims, cause of death, demographic location of urban and rural areas. Cases excluded from the study were those occurring in the home environment, but with inadequate documentation.

RESULTS

There were 1184 autopsies done at the University of Port Harcourt Teaching Hospital between January 1995 and December 2002. Among these were 966 coroner's autopsies, of which 670 resulted from violent

deaths (Table I). Accidental deaths contributed 424 of violent deaths 83 (19.6%) of which were from domestic accidents (Table 2). These 83 cases that satisfied the inclusion criteria, accounted for 8.9% of all Coroners' autopsies. The age distribution as shown in Table 3 reveals a peak age group to be those over 70 years at 22 cases (26.5%). The preschool age group constituted the second peak with 20 cases (24.1%). The 41-45 years age group recorded no mortality.

The gender, cause and location of death is as shown in (Table 4). Male-Female ratio was 3:1, 76% occurring in males. Seventeen deaths (20.5%) resulted from falls, being the commonest cause of death in the study. A curious case of overlying was reported, where

an obese mother mistakenly slept over the baby. More deaths occurred in the urban areas (61.4%) than in the rural areas (38.6%) (Table 4). Of the fourteen cases of poisoning, six were from kerosene, five from insecticides and three from coloured tablets. Eight cases of electrocution seen, mostly presented with Joules burns. Two children were found hanged between their mattress and the wall of the building. This probably was from foul play. Four cases of foreign body aspiration were recorded, the commonest object being the maize seed.

There is a decreasing incidence of domestic accidental deaths (Table 5). Most of the cases occurred between 1995 - 1997 accounting for 64 cases (65.1%). The least incidence was in 1999 with five cases (6.0%), and the highest in 1995 with 22 cases (26.5%).

Table 1*Types of medicolegal autopsies*

Subtype	No. of Cases
Violent deaths	670
Sudden deaths	239
Abortions	15
No anatomical cause	8
Inadequate records	36
Total	966

Table 2*Violent deaths subsets*

Subsets	No. of Cases
Accidental	424
(a) Road Traffic Accidents	321
(b) Domestic Accidents	83
(c) Industrial Accidents	20
Homicide	236
Suicide	10
Total	670

Table 3*Age and distribution of deaths from domestic accidents at the University of Port Harcourt Teaching Hospital Rivers State*

Age (years)	No. of Cases	%
< 5	20	24.1
5 - 10	6	7.2
11 - 15	3	3.6
16 - 20	3	3.6
21 - 25	4	4.8
26 - 30	2	2.4
31 - 35	1	1.2
36 - 40	4	4.8
41 - 45	-	-
46 - 50	2	2.4
51 - 55	3	3.6
56 - 60	4	4.8
61 - 65	4	4.8
66 - 70	5	6.0
71 & above	22	26.5
Total	83	100

Table 4*Cause of death, sex and demographic location of the domestic accidents*

Cause of death from domestic accident	Sex		Demographic areas		Total	%
	Male	Female	Urban	Rural		
Falls- Same level	5	1	4	2	6	7.2
Height	8	3	7	4	11	13.3
Burns	10	2	8	4	12	14.5
Poisoning	6	8	9	5	14	16.9
Electrocution	6	2	7	1	8	9.6
Gunshot	13	-	12	1	13	15.7
Collapsing mud wall	4	-	-	4	4	4.8
Aspiration of foreign bodies	2	2	1	3	4	4.8
Plastic bag suffocation	3	-	1	2	3	3.6
Drowning	4	1	2	3	5	6.0
Unsafe sleeping environment	1	1	-	2	2	2.4
Overlying	1	-	-	1	1	1.2
	63 (76%)	20(24%)	51(61.4%)	32(38.6%)	83	100

Table 5*Yearly distribution of domestic accidents*

Year	Male	Female	Total	%
1995	15	7	22	26.5
1996	12	3	15	18.1
1997	13	4	17	20.5
1998	7	3	10	12.1
1999	5	-	5	6.0
2000	8	-	8	9.6
2001	3	3	6	7.2
Total	63	20	83	100

Figure 1

A young boy that fell off the staircase and broke the skull

Figure 2

A young male that fell from his bathtub and broke his neck. Note the cervical collar

Figure 3*Severe petrol burns***Figure 4***Joules burns in a victim of electrocution***DISCUSSION**

This is the first study of this kind done in the Niger Delta Region of Nigeria. The preschool age peak agrees with that of Onadeko(4) and Knight *et al* (6), who worked only on children. The elderly and preschool age groups were prominently susceptible to domestic accidents, in this study. This bimodal age distribution was observed by Seleye - Fubara in his study on violent deaths(10). Love of adventure, restlessness and a higher level of physical activity predispose the male gender to these accidents(4,11,12). In our study, the male :female ratio was 3:1, which closely agrees with that of Onadeko(4), even though his thrust of study was on children. There was a decreasing incidence as the year advances. This is probably due to better safety appreciation in the region.

More of the deaths (61.4%) occurred in the urban setting, as seen also in another part of Nigeria(4). Falls constituted the commonest cause of death in the elderly both in the urban and rural areas. This observation seen elsewhere is usually attributed to the influence of alcohol and drugs, severe arthritis(5,6). postural instability, poor vision and dizziness(6). Wet, greasy, defective and polished floors encourage these falls, causing sometimes, severe head injuries and skull fractures(6). Some of our observations included falls from staircases (Figure 1) and trees. Head injuries were the cause of death in 11 cases of falls, while some others died from multiple injuries. A young man fell off his bathtub, broke his neck and died (Figure 2).

Poisoning (from drugs and chemicals) was the commonest cause of death in children. The fairly frequent deaths in children from drugs and chemicals (16.9%) may be attributed to poor supervision, where working parents abdicate their responsibilities to older siblings or "househelps", not trained in childcare(4). In our study, females were more affected by poisoning and most of the cases occurred in the urban setting. Implicated chemicals in their order of occurrence were kerosene (n=6), insecticides (n=5) and coloured tablets (n=3), this corroborates the observation of Onadeko(4) and Seriki(5) at Ibadan, in other African reports.

Accidental deaths from gunshot injuries were also commoner in the urban areas, where many keep guns for self- defence. Children sometimes kill each other or relatives when they try to replicate movie scenes. Males are more affected. Outside Nigeria, these same observations have been documented by Nance *et al* (11).

Inflammable substances like petrol (premium motor spirits) and kerosene (both dual purpose and household varieties used domestically) are frequently stored at home in anticipation of periods of scarcity that is sporadic in Nigeria. The instability of electricity supply increases the need for use of naked flames e.g. candles and kerosene lamps. Both scenarios encourage fire accidents in homes with resultant deaths from explosions or fire burns (Figure 3) or inhalational pneumonitis(7). Children and infirm adults may accidentally fall into fires or hot liquids(7,8). In this study, 14.5% of the cases were due to burns. This is lower than the findings in Onadeko's report (4). 9.6% of our victims died from electrocution. Joules burns, described as subcutaneous coagulation(12), may be the only autopsy finding (Figure 4). The preponderance of male victims of electrocution can be explained by the behaviour of men to fiddle with electrical appliances in the homes.

Drowning is a significant cause of domestic deaths in the western world(13,14) but in our series it was 6%. Drowning is commoner in males from the rural environment due in part to poor medical services(16). Convulsive disorders contribute to drowning in both adults and children. A pathetic case in our study is a one year old baby who drowned in a bucket of water

while trying to catch his shadow. The low percentage from drowning may be attributed to certain factors like the tendency not to take the bodies to hospital, attributing such deaths to superstitious beliefs in the presumed activities of gods and goddesses.

Death from aspiration of foreign bodies including food is common in our environment(17). Four cases were recorded in our series, affecting preschool age children. This age group is exploratory, hyperactive, inquisitive and they chew poorly. These factors encourage aspiration, and the commonest object in the Niger Delta area is the maize seed, bulk of the victims being rural dwellers. This again might be due to the distance from medical facilities which can offer emergency services.

Four rural dwellers died from crushing by collapsed mud walls. This, from our search, appears to be the first report in Nigeria, although similar reports have been made in Uganda(18). Three children died from suffocation with plastic bags. There has recently been flooding and littering of the environment with plastic bags for drinking water and beverages in Nigeria. Two children died in an unsafe sleeping environment. They were found hanged between the mattress and the wall of the building. Death by hanging has been reported elsewhere by Corey *et al.* (9), who made a similar observation. A child is suspected to have died from overlying from an obese mother in a rural setting. No autopsy finding suggested this, and the mother had a negative history of alcohol or drug abuse. The child probably died from sudden infant death syndrome or deliberate suffocation. There was no death from animal or reptile bites in this study, although it has been reported elsewhere(19).

In conclusion, domestic accidental deaths are a cause for concern in our environment. Most of the causes as in accidents in general, are avoidable. Safety measures as adopted in industries and other places of work should be adopted in homes. Education to promote awareness of safety measures and enforceable legislation to promote compliance with these measures are expected to help reduce death from accidents at homes. Both are urgently needed in the Niger Delta region of Nigeria.

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