

Young Tend to Commit Suicide, Die of Road Traffic Accidents or being Killed by Someone: an Analysis of Medico-Legal Deaths

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ABSTRACT

Background: Young people tend to get aggressive or depressed and may risk their lives. This research was done to describe the associations of demographic findings with causes and postmortem findings of medico-legal deaths.

Methods: Descriptive cross-sectional study of all deaths reported to a selected tertiary care hospital in Colombo Sri Lanka from 1st of January-2011 to 31st of December-2012 was conducted.

Results: Out of 1502 postmortems 67.3% were natural deaths, 16.8% accidents, 6.1% suicides and 3.5% homicides. Majority (54.5%) were 'pre-mature' deaths (<60 years) with mean age of 54.4 (+/-19.1). Majority (71.4%) were males. Majority (47.7%) were non-communicable diseases and were 16.6% and 52% in =<30 and >30 years of age respectively (P<0.01). Cardio vascular system accounted for 40.7% deaths and was associated with both age and sex (P<0.01). The most common course of death was ischemic heart disease (22.9%) and was also associated with age (P<0.01). Out of 887 natural deaths only 170 were infectious communicable diseases, out of which 89 were respiratory causes. Road traffic accidents accounted for 171 deaths and were 17.1% and 10.6% respectively among =<30 and >30 years (P<0.01). There were 34 train injury deaths and were 4.1% and 0.9% respectively among 5 police stations along the coastal railway line and other 10 police stations (P<0.01). There were 50 suicides by hanging and were associated with age (P<0.01) but not with gender or ethnicity (P>0.05). There were 46 homicides and were 7.8% and 2.4% among =<30 and >30 years respectively (P<0.01) but were not associated with gender and ethnicity (P>0.05).

Conclusion: Non-communicable disease was the leading cause of mortality. Majority were 'premature deaths'. Communicable diseases were dominant only in respiratory deaths. Adults more than 30 years old tend to die of non-communicable diseases especially by cardio vascular system causes such as ischemic heart disease. Young people less than 30 years old tend to die of road traffic accidents, commit suicide by hanging or being killed by someone. Limitation of access to railway lines in order to reduce the railway deaths is recommended.

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► *Implication for health policy/practice/research/medical education:*

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1. Introduction:

Young people tend to get aggressive or depressed and may risk their lives and can die of un-natural means (1). Natural deaths are due to Non-Communicable Diseases (NCDs) caused by unhealthy “lifestyle” or Communicable Diseases (CDs) caused by infectious agents (2). This study was conducted to describe the associations of epidemiological, socio-economic and postmortem findings of medico-legal deaths.

2. Materials and Methods:

Descriptive cross-sectional study of all deaths reported to a selected tertiary care hospital in Colombo Sri Lanka from 1st of January 2011 to 31st of December 2012 was conducted after obtaining the authority of the Director of the Hospital.

3. Results:

Out of 1502 postmortems, majority (71.3%, n=1071) were male deaths and 28.7% (n=431) were female deaths.

Age was unable to be ascertained in 18 cases. Majority (54.5%, n=809) of sudden deaths were ‘pre-mature’ deaths (<60 years) with mean age of death (+/-SD) 54.4 (+/-19.1). Out of 1484 age known deaths, 12.6% (n=187) were young deaths with age equal or less than 30 years and majority (87.4%, n=1297) were more than 30 years of age.

Regarding the circumstances of death, 67.3% (n=887) were natural deaths, 16.8% (n=222) accidents, 6.1% (n=81) suicides and 3.5% (n=46) homicides. In 5.2% deaths (n=78), accident or suicide was unable to be differentiated and in 0.3%

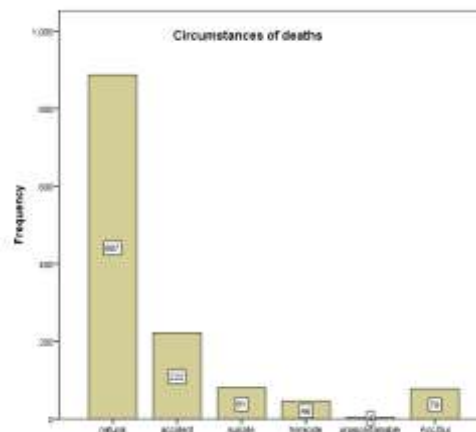


Fig. 1. The circumstances of deaths.

deaths (n=4), the cause of death was unascertainable. Fig. 1 shows the distribution of the circumstances of deaths. Out of sudden deaths, majority (47.7%, n=717) were NCD deaths. The NCD deaths were 16.6% and 52% in <30 and >30 years of age respectively and the difference was statistically significant ($p < 0.01$) ($\chi^2 = 82.423$, $df = 1$, $p = 0.000$). Out of Non-Communicable Diseases (NCD) 40.4% (n=332) were ‘premature NCD deaths’.

Out of sudden deaths, most affected system (40.7%, n=611) was cardiovascular system while lowest affected system (1.1%, n=17) being genito-urinary system. The CVS deaths were 12.8% and 44.6% in <30 and >30 years of age respectively and the difference was statistically significant ($p < 0.01$) ($\chi^2 = 68.249$, $df = 1$, $P = 0.000$).

Among sudden deaths, the most common Course of Death (COD) was Ischemic Heart Disease (IHD) (22.9%, n=344). IHD deaths were 2.1% and 25.6% in <30 and >30 years of age respectively and the difference was statistically significant ($P < 0.01$) ($\chi^2 = 51.406$, $df = 1$, $P = 0.000$).

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Table 1: Distribution of ethnicity groups.

Ethnic group	Frequency	Percent
Sinhala	1386	92.3
Tamil	77	5.1
Muslims	18	1.2
Burger and others	21	1.4
Total	1502	100.0

Therefore, NCD, CVS and IHD deaths had a statistically significant association with age ($P < 0.05$).

Regarding ethnicity, majority (92.3%, $n=1386$) was Sinhala and lowest being

Muslims (1.2%, $n=18$). Distribution of ethnicity groups are shown in table 1.

Table 2. Association between NCD deaths and ethnicity.

		Ethnicity				Total
		Sinhala	Tamil	Muslims	Burger & others	
NCD deaths	Count	656	40	8	13	717
	%	47.3%	51.9%	44.4%	61.9%	47.7%
Non-NCD deaths	Count	730	37	10	8	785
	%	52.7%	48.1%	55.6%	38.1%	52.3%
Total	Count	1386	77	18	21	1502
	%	100.0%	100.0%	100.0%	100.0%	100.0%

($\chi^2 = 2.407$, $df = 3$, $p = 0.492$)

The prevalence of NCD deaths and ethnicity are shown in table 2. There was no significant association between NCD deaths and ethnicity ($P > 0.05$) ($\chi^2 = 2.407$, $df = 3$, $P = 0.492$).

There was no significant association of CVS deaths ($P > 0.05$) ($\chi^2 = 4.349$, $df = 3$,

$P = 0.226$) and IHD deaths ($P > 0.05$) ($\chi^2 = 1.652$, $df = 3$, $P = 0.648$) with ethnicity ($P > 0.05$). Therefore, the sudden deaths due to NCDs, CVS and IHD were not associated with ethnicity ($P > 0.05$).

Table 3. Association between NCD death and gender.

		Gender		Total
		Male	Female	
NCD	Count	510	207	717
	%	47.6%	48.0%	47.7%
Non-NCD	Count	561	224	785
	%	52.4%	52.0%	52.3%
Total	Count	1071	431	1502
	%	100.0%	100.0%	100.0%

($\chi^2 = 0.021$, $df = 1$, $P = 0.886$)

When considering the distribution of gender, majority (71.3%, $n=1071$) were males and 28.7% ($n=431$) were females. There was no statistically significant association between NCD deaths and gender ($\chi^2 = 0.021$, $df = 1$, $P = 0.886$). The

association between NCD deaths and gender is shown in table 3.

There was no statistically significant association between IHD deaths and gender ($\chi^2 = 2.977$, $df = 1$, $P = 0.084$). Though NCDs and IHDs were not

Table 4. Association between train deaths and location of train death.

		Police stations 2 groups		
		Police stations along coastal railway line	Police stations not along the coastal railway line	Total
Train deaths	Count	26	8	34
	%	4.1%	.9%	2.3%
Non-train deaths	Count	606	862	1468
	%	95.9%	99.1%	97.7%
Total	Count	632	870	1502
	%	100.0%	0.0%	100.0%

($\chi^2 = 16.884$, $df = 1$, $p = 0.000$)

associated with gender, the CVS deaths were 69.7% and 60.1% in males and females respectively and the difference was statistically significant ($P < 0.05$) ($\chi^2 = 4.361$, $df = 1$, $P = 0.037$).

Out of natural deaths ($n = 887$), 80.8% ($n = 717$) were NCD deaths and the rest ($n = 170$) were communicable diseases (CD) ($n = 167$) and under investigation ($n = 3$) deaths. Out of 167 Communicable Diseases (CD) deaths, the majority (89) were due to respiratory causes.

Coastal railway line runs across the study population area. It runs across 5 police stations namely Wellawatta, Dehiwala, Mt Lavinia, Moratuwa and Panadura. There were 34 train injury deaths and were 4.1% and 0.9% respectively among 5 police stations along the coastal railway line and other 10 police stations and the difference was statistically significant ($P < 0.01$) ($\chi^2 = 16.884$, $df = 1$, $P = 0.000$). The association between train deaths and

location of train deaths are shown in table 4.

Road Traffic Accident (RTA) accounted for 171 deaths and were 17.1% and 10.6% respectively among ≤ 30 and > 30 years of age and the difference was statistically significant ($P < 0.01$) ($\chi^2 = 6.947$, $df = 1$, $P = 0.008$).

There were 50 suicides due to hanging and were 12.3% and 2.1% in ≤ 30 and > 30 years of age respectively and the difference is statistically significant ($P < 0.01$) ($\chi^2 = 52.409$, $df = 1$, $P = 0.000$).

There were 46 homicides and were 7.8% and 2.4% among ≤ 30 and > 30 years of age respectively and the difference was statistically significant ($P < 0.01$) ($\chi^2 = 18.563$, $df = 1$, $P = 0.000$).

Therefore, RTA deaths, commit suicide by hanging and being killed by homicide had a statistically significant association with age.

Table 5. Association of RTA deaths and gender.

		Gender		
		Male	Female	Total
RTA deaths	Count	132	39	171
	%	12.3%	9.0%	11.4%
Non-RTA deaths	Count	939	392	1331
	%	87.7%	91.0%	88.6%
Total	Count	1071	431	1502
	%	100.0%	100.0%	100.0%

($\chi^2 = 3.270$, $df = 1$, $p = 0.071$)

The association between RTA deaths and gender are shown in table 5. There was no statistically significant association between

RTA deaths and gender ($P > 0.05$) ($\chi^2 = 3.270$, $df = 1$, $P = 0.071$).

There was no statistically significant association of hanging deaths ($P > 0.05$) ($\chi^2 = 0.184$, $df = 1$, $P = 0.668$) and homicide

Table 6. The association of RTA deaths and ethnicity.

		Ethnicity				Total
		Sinhala	Tamil	Muslims	Burger & others	
RTA deaths	Count	160	6	4	1	171
	%	11.5%	7.8%	22.2%	4.8%	11.4%
Non-RTA deaths	Count	1226	71	14	20	1331
	%	88.5%	92.2%	77.8%	95.2%	88.6%
Total	Count	1386	77	18	21	1502
	%	100.0%	100.0%	100.0%	100.0%	100.0%

($\chi^2 = 4.028$, $df = 3$, $p = 0.258$)

deaths ($P > 0.05$) ($\chi^2 = 1.030$, $df = 1$, $P = 0.310$) with gender.

The association between RTA deaths and ethnicity are shown in table 6. There was no statistically significant association between RTA deaths and ethnicity ($P > 0.05$) ($\chi^2 = 4.028$, $df = 3$, $P = 0.258$).

There was no statistically significant association of hanging deaths ($P > 0.05$) ($\chi^2 = 3.253$, $df = 3$, $P = 0.354$) and homicide deaths ($P > 0.05$) ($\chi^2 = 1.409$, $df = 3$, $P = 0.703$) with ethnicity.

Therefore, sudden deaths due to RTA, hanging or homicides were not associated with gender or ethnicity ($P > 0.05$).

4. Discussion:

Though WHO states that the NCD represents over 60% of all global deaths (3), this study revealed only 55%, but still it was the leading cause of mortality.

According to the WHO statistics 2012 of low and middle income countries, the deaths that occur before the age of 60 years are considered as 'premature deaths' (4). In this study, majority (54.5%) of sudden deaths were 'pre-mature deaths' with mean age (+/-SD) 54.4 (+/-19.05). Out of all deaths in the world, WHO 2011 reported that 55.5 % are males (5) while in this study, among sudden unexpected deaths, 71.3% were males.

According to the WHO statistics 2012, the prevalence of premature NCD deaths was 29% (4). But in this study, the premature NCD deaths (40.4%) were higher than WHO figure. Therefore, WHO suggests

reducing the risk factors of NCDs such as tobacco use, unhealthy diet, physical inactivity and harmful alcohol use, and improving access to cost-effective healthcare interventions to prevent complications, disabilities and premature deaths (4).

The NCD deaths were significantly high among adults elder than 30 years of age ($P < 0.01$). Out of NCDs, the most common COD was IHD (22.9%). IHD deaths were also significantly higher among adults elder than 30 years of age ($P < 0.01$). Out of natural deaths, commonest system involved was CVS and CVS deaths among adult males more than 30 years of age were statistically significant. Therefore, this study showed that irrespective of race, the adults more than 30 years of people tend to die of natural means and mainly due to NCDs due to bad life styles.

Out of all systems, only the respiratory system deaths had more communicable disease (CD) deaths than NCD deaths. Communicable respiratory diseases can spread through air when a person coughs, sneezes, speaks or blows the nose. They can also be spread by objects contaminated with saliva or nasal secretions. The spread of many of these CDs can be prevented by thorough hand washing (6).

The coastal railway line is not protected and the more railway deaths were reported to the 5 police stations located along this railway line. There was a statistically significant difference between the railway deaths reported to 5 police stations located along the coastal railway line than other 10

police stations. It highlights the importance of development of protective fence along the railway lines as is found in western countries. Key plans for the future should include reduction of the number of level crossings and involving communities in safety work related to railway trespassers (7).

Fatalities due to RTAs in Oman are increasing, especially among those aged 26-50 years (8). Contrary to that, this study revealed that young people less than 30 years old have a higher chance of getting killed by RTA. According to a study done in Italy, driving while under the influence of alcohol or drugs or while being distracted by cigarette smoking or the use of mobile phones are the risk factors most frequently associated with fatal traffic accidents (9). Young people more prone for such behaviors.

Suicide by hanging is more popular among males of mean age 32.4 years in Iran (10). But in this study, young less than 30 years old have a higher chance of committing suicide by hanging.

In USA, homicide was disproportionately affects persons aged 10-24 years and consistently ranks in the top three leading causes of death in this age group (11). In this study too, young people less than 30 year old tend to get killed by someone else.

This shows that younger people tend to get killed in un-natural means. Further, the gender or race has no significant influence on RTA, hanging or homicide deaths.

5. Conclusions:

NCD was the leading cause of mortality. Majority were less than 60 years 'premature deaths'. Communicable diseases (CD) were dominant only in respiratory system. Adults more than 30 years old tend to die of NCDs especially by CVS causes such as IHD and males prone to die of CVS causes. Therefore, healthy life style with regular exercises is highly indicated after the age of 30 years. Contrary to that, young people less than 30 years old, tend to commit suicide by

hanging, die of RTAs, or being killed by someone. Therefore, measures should be taken to prevent young people getting in to depressed or aggressive states. Limitation of access to railway lines to reduce the railway deaths is recommended.

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