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Suicidal deaths in depth-Eastern Province-Saudi Arabia

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Abstract Suicide is a multifaceted phenomenon often comprising the collaboration of a number of different risk factors, including psychiatric illnesses and adverse life events occurring during the course of the life. Suicide has a great public health effect. Suicide ranks among the top ten causes of death among individuals of all age groups in most developed countries.

Objective: To investigate suicidal deaths, over a period of two years in Eastern Province, Saudi Arabia.

Methods: A retrospective study was carried out on 145 suicide cases examined at the Forensic Medicine Center in Dammam, Kingdom of Saudi Arabia, since start of January 2012 till end of December 2013.

Results: Of the investigated 145 suicidal cases, 122 (84.1%) were males and 23 (15.9%) were females, and the ratio of the males to females was 5.3:1. Around 38.6% of the studied subjects were in their third decade. The largest percentage of suicides were among non-Saudis (116, 80%), and the highest is the Indian population (65, 45%), followed by Saudi nationals (29, 20%). Suicide by hanging was the most common method (110, 75.9%). The highest incidence of cases was encountered in Dammam ($N = 48$, 33%) followed by Khobar, Jubail and Qatif with equal number of fatalities per each region ($N = 19$, 13%).

Conclusion: In conclusion, extensive socio-demographic variability exists across different suicidal cases. Acknowledgement of this variability may help to tailor prevention efforts in different parts of the world.

1. Introduction

Suicide is one of the ten leading causes of death worldwide. According to statistics, daily about 3,000 individuals around the world – roughly 1 million subjects yearly – willingly end their lives, which accounts for 1.5% of total fatal cases. The real scope of this problem is even more dramatic, as the figure of suicide attempts is significantly higher than the number of accomplished suicides.[1]

Determination of the associations between demographic factors and suicidal deaths represent major challenges for medico-legal investigations.[2] Suicide can result from a range of factors, including, psychiatric disorders, undesirable life events, alcohol and drug abuse, family history of suicidal cases, physical diseases, exposure to suicidal behavior of others, and access to means of self-harm. In any individual case multiple factors are usually involved.[3]

Occupational stresses including long work periods, in addition to other aspects as social loneliness, aging population, and poor access to health care facilities have also been suggested for the high burden of suicide in workers, and lower education groups.[4,5]

Antisocial and criminal behavior is known to increase among alcoholics.[6] It is of great importance to note that alcohol-related violent problems are essentially challenging, and this relates to the unreliability of data in most of alcohol related violent deaths.[7] It can be claimed that poverty and humble socioeconomic status are key factors in suicidal cases, if compared to their level of education, demonstrating a disagreement between high objectives and poor accomplishments. These aspects might result in low self-esteem, and combined sense of entrapment, ending in a deep sense of depression and suicidal outcome.[8,9]

Underreporting of suicide deaths is a big issue in reporting exact number of cases, this might be due to misclassification of suicidal cases, and earlier studies made estimates of underreporting as high as 80%. Suicides might be misclassified to other causes of deaths, including accidental drowning, accidental poisoning, road traffic accident deaths, and natural causes of death.[10,5]

The incidence of suicide showed marked variation when examined by age–sex subgroups in different studies. The male rate of suicide far exceeded the female rate at each age group over 15 years in many research works.[6,11] Suicide rate was much higher among single, separated and widowed groups above the married group.[12]

2. Methods

The data of suicidal deaths ($N = 145$ from autopsy reports done in Department of Forensic Medicine, Eastern Province, Saudi Arabia in the period since start of January 2012 till end of December 2013, were retrospectively examined with respect to their demographic data and findings in their autopsy reports. Cases were determined to be suicides according to information derived from scene investigations, the general prosecutor's investigations, external examination, autopsy findings, and toxicological analysis. Blood and urine samples positive for ethanol were analyzed for ethyl glucuronide and ethyl sulfate (EtG and EtS) by Liquid Chromatography Tandem Mass Spectrometry using methodology described by

Helander et al.[13] and only cases with EtG levels $\geqslant 0.5\ \mu g/mL$ (positive cut-off for EtG), and EtS $\geqslant 0.1\ \mu g\ ng/mL$ (positive cut-off for EtS) were included in the study. All cases with inaccurate data or, unclear mode of death were excluded from the study. Ethical guidelines were followed.

3. Statistical analysis

The demographic data, and toxicology findings of the investigated cases were submitted to statistical evaluation by SPSS program version 22, and were compared to similar studies. Data obtained have been tabulated and the results were statistically analyzed. Ranking of the substances and drugs of abuse most commonly identified in studied samples in suicide cases in relation to age and gender of the deceased with median and 90th percentile concentrations were calculated.

4. Results

The suicidal fatalities accounted for 145 (53.7%) cases, from all the deaths ($N = 270$), submitted for autopsy in the mortuary of the department of Forensic Medicine, Eastern Province, in Saudi Arabia, in the time period since start of January 2012 till end of December 2013, were investigated. As shown in Table 1, suicide cases ($N = 145$, 53.7%) were the first leading manner of death followed by natural deaths ($N = 58$, 21.5%) in the studied period. The suicidal fatalities were investigated as regards demographic data of the deceased and the frequency

Table 1 Distribution of total deaths ($N = 270$) during the studied period by gender and manner of death.

Manner of death		Sex		Total
		Male	Female	
Accidental	Count	26	10	36
	% of Total	9.6%	3.7%	13.3%
Suicidal	Count	122	23	145
	% of Total	45.2%	8.5%	53.7%
Homicidal	Count	22	2	24
	% of Total	8.2%	0.7%	8.9%
Natural	Count	42	16	58
	% of Total	15.6%	5.9%	21.5%
Undetermined	Count	7	0	7
	% of Total	2.6%	0.0%	2.6%
Count		219	51	270
% of Total		81.2%	18.8%	100.0%
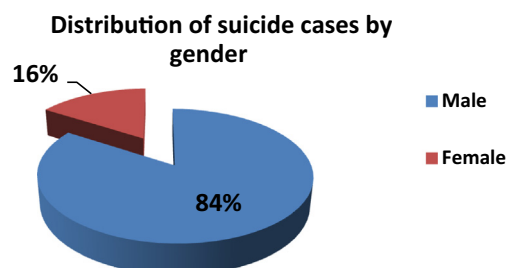
Figure 1 Distribution of suicide cases by gender.