

Analytical Study on Seasonal and Regional Variations in Death Cases, Based on Medicolegal Autopsies Reports at LUH Hyderabad, Pakistan

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ABSTRACT

Aim: To evaluate the rates of medico-legal autopsies in different areas of Hyderabad division in different seasons

Study Design: Observational study

Place and duration of study: Liaquat University of Medical and Health Sciences, Jamshoro and Medicolegal Section of Liaquat University Hospital Hyderabad from 1st January 2015 to 31st December 2019.

Methodology: Nine hundred and eight two cases reported from various nearby areas of Hyderabad over a period of 5 years were included. Data was obtained from the relatives and available evidences with no age limits and death as the inclusion criteria, excluding the non-medicolegal deaths.

Results: There were 207(21.1%) male deaths and 775(78.9%) were female deaths with a mean age of 33.06±15.730 years the minimum age was 1 year and the maximum age was 85 years. There were 231(23.52%) cases seen in winter season and 271(27.60%) cases presented in spring season. The number of autopsies conducted in summer season was 245(24.95%) and 235(23.93%) cases were seen in autumn season.

Conclusion: Most death cases were reported in winter season and from Hyderabad district which shows a seasonal and regional influence.

Keywords: Seasons, Regions, Autopsy

INTRODUCTION

The seasonal effect on human mortality was described by Hippocrates (Airs, Waters, Places) inviting the researchers to consider the effects of various seasons while practicing medicine as this variance along the whole year brings many changes.¹ Seasonal variability in death rates is well-known in various regions of the world². The seasonal influence on mortality rates is well documented like geographical, meteorological, socioeconomic, humidity, rainfall, cool and warm environment³. Japanese individuals are reported to die more in winter season with accidents and other reasons⁴. Similarly people in Burkina Faso have more rate of all-cause mortality in winter season⁵. There are various patterns of death e.g. assaults with weapons, hanging, fire-arm, poisoning, drowning, burning, accidents commonly seen in every region globally⁶.

The knowledge regarding the seasonal death patterns their geographical as well as demographic parameters are very important in forensic medicine as an evidence for many reasons. Pakistan has four different seasons the winter which begins from December and almost ends by February with moderate to extreme cold depending on the particular region; the spring season usually runs from March to May with its hot and dry climate. The summer season is from the month of June to August which is a rainy season in most areas of the country while the autumn

season comprises on September to November months. There was a great knowledge gap on the topic in Pakistan and the Sindh province especially so we decided to fill the gap with our current work which is based on various forensic autopsies of death cases presented to Liaquat University of Medical and Health Sciences.

MATERIALS AND METHODS

It was an observational study conducted at the Medicolegal Section of LUH (Liaquat University Hospital) Hyderabad & LUMHS (Liaquat University of Medical and Health Sciences), Jamshoro over a period of 5 years from 1st January 2015 to 31st December 2019. The data for this research work was obtained from medicolegal autopsy cases with the consent of close relatives. The inclusion criteria was medicolegal death cases of any age group and the exclusion criteria was death cases of non-medicolegal nature. Data was analyzed through SPSS-22.

RESULTS

Two hundred and thirty-one (23.52%) cases seen in winter season and 271(27.60%) cases presented in spring season. The number of autopsies conducted in summer season was 245(24.95%) and 235(23.93%) cases were seen in autumn season (Table 1). Male death cases were 207(21.1%) and female death cases were 775(78.9%) with a mean age of 33.06±15.730 years the minimum age was 1 year and the maximum age was 85 years. Hyderabad district

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represented the majority of medicolegal cases of death 723(73.62%) followed by District Jamshoro with 66 (6.72%) cases, Badin 54(5.50%), Tando Muhammad Khan 52(5.30%), Nooriabad 28(2.85%), other 25(2.55%), Tando Allah Yar 17(1.73%), Matiari 17(1.73%)cases (Table 2).

Table1: Seasonal distribution of autopsies

Season	No.	%
Winter (Dec. to February)	231	23.52
Spring (March to May)	271	27.60
Summer (June to August)	245	24.95
Autumn (Sept. to November)	235	23.93

Table-2: Distribution of areas according to deaths

Area	No.	%
Hyderabad	723	73.62
Jamshoro	66	6.72
Badin	54	5.50
Tando Muhammad Khan	52	5.30
Nooriabad	28	2.85
Tando Allah Yar	17	1.73
Matiari	17	1.73
Other	25	2.55

DISCUSSION

Many researchers have published their regional data in this aspect of the scientific field of forensic medicine Gupta et al⁷ mentioned 104 deceased without any treatment with 70(67.3%) males and 34(32.7%), and highest percentage 29.8% belonged to age range 20-40-year that is consistent to our results. They reported sudden death either due to injuries or attacks but neglect in old age cases as the cause of death. Results of study by Rastan et al⁸ were inconsistent to our results as he reported 68.7 years as mean age of his study population while cause of death in 49.8% was cardiac, 8.3% respiratory, 6.4% cerebral, 4.7% abdominal, 14.9% sepsis and surgery associated 8.3%. This inconsistency between the two studies is due to his specific population of cardiac surgery patients that died perioperative. Farhat et al⁹ in their research work on pattern of injuries in fire arm cases in 944 medico legal deaths with 931(98.62%) were homicidal while 13(37%) were suicidal. Most affected 477(50.52%) age group was 16-30 years. Male were reportedly 883(94.84%) and female were 48(5.16%) that is partially consistent to our findings. Another study by done by Ullah et al¹⁰ on 2025 autopsies of homicidal cases and reported 1375(67.24%) males while females were 670(32.76%) females he also declared fire arm as the commonest cause of death 1230(60.14%). This study was also inconsistent to our results the possible difference is the regional culture their study was conducted in the KPK province where weapon are frequently carried in hands even in young child age. Another study done by Mirza¹¹ on 2090 autopsies reported 581 (27.8%) cases of RTA, male and female involvement was 510 (87.8%) and 71 (12.2%) respectively. Age range 19 and 40 years was more commonly involved. Cause of death was reported to be head injury in 386 (66.4%) and injury to chest was reported in 84 (14.5%). Ahmad et al¹² evaluating the confirmatory diagnostic accuracy of autopsy reported that 65% diagnosis was missed while 35% of the diagnosis was in accordance with the autopsy findings.

The autopsy is so important that may help both parties justice the family of the victim as well as the society with long impact on others. At the same time, it may differentiate between suicide and murder as suicide is a common practice in depressive patients¹³. We could not cover many aspects of the task due to multiple reasons but suggest that a study nationwide comparing various region in terms of cultural values and variety of conditions should be conducted. Kalkstein¹⁴ also suggested that there exists strong seasonal relation with human mortality pattern with more deaths in winter season as compared to summer that consistent with our present findings. Research studies has proved distinctive temporal relation between human mortality and different seasons and reported high mortality in winter and lower mortality in summer season which is also consistent with our study results¹⁵.

We recommend more studies on a larger scale extending the study population different provinces all together in cluster form and hope the current study will ease the path of other researchers in this regard.

CONCLUSION

Majority of Medico-legal autopsy death cases were reported in winter season which were from Hyderabad district that shows a seasonal and regional influence

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