

# Fate/Outcome of Exhumation in Pakistan

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## ABSTRACT

**Objective:** To study Fate/Outcome of Exhumation in Pakistan

**Study Design:** Retrospective Study

**Place and Duration of Study:** This study was conducted at the Police Surgeon Office Lahore and Benazir Bhutto Shaheed Hospital Abbottabad and Khyber Medical College Peshawar during Jan 2015 to July 2019.

**Materials and Methods:** The 311 exhumation cases were included in this study. The demographic data, fate/outcome of exhumation, time since burial, condition of the dead body and viscera sent to the chemical examiner was noted down in the design performa. The permission of ethical committee was considered before start of study and gets publishing the data in the Medical Journal. The results were analyzed on SPSS version 10.

**Results:** In respect of age and Gender distribution in exhumation cases, the female %age was more than male in 31-40 years and in the age of 70 years and above, the female %age was less than male.

In respect of Time since Burial in Exhumation Cases, 1 to 6 months the female% less than Male and in 30

Years and above female% more than male. In respect of condition of dead bodies in exhumation cases, the dead bodies in exhumation more identifiable, and putrefied in female than male. The Condition skeletonized and bones decomposition less in female than male. In respect of causes of death on exhumation, the cases of undetermined, fire an injury and blunt injury are more than other cases. The detailed of all above shown in tables 1to 4.

**Conclusion:** Delayed exhumation due to lengthy legal procedures involved in carrying out this process leading to decomposition of bodies, resulting in unascertainable cause of death. Early decomposition of bodies due to multiple reasons like hot climate, water logging and salinity, improper drainage of graveyards etc. is a bar to ascertain cause of death

**Key Words:** Exhumation, Demographic data, fate/outcome of exhumation, time since burial, condition of the dead body and viscera

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## INTRODUCTION

Exhumation carried out after obtaining an appropriate permission from the state, is digging up or removal of buried body from the grave or ground<sup>1</sup>. The main purpose of performing the exhumation is to determine the cause of death when foul play is suspected<sup>2</sup>, but this

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is also done for identification purposes required in some civil and criminal cases<sup>3</sup>.

Though it is a key to determine the cause of death especially in homicidal cases but sometimes it is not determined and acknowledged as unascertained because examination of disinterred body is by no means infallible in revealing the cause of death<sup>4</sup>, and herein no abnormality is detected on gross examination of body and histological, toxicological and microbiological procedures are insignificant<sup>5</sup>. Decomposition is not only a bar to successful examination but it may also reduce the possibility of obtaining samples, resulting in failure to establish the cause of death. Various factors influencing the decomposition are time elapsed between burial and exhumation, seasonal environment, soil conditions and coffin material<sup>6</sup>. Other reasons for unascertainable cause of death are infectious diseases, cardiac lesions, metabolic & blood disorders, allergy, anaphylactic reactions, acute neurogenic cardiac failure, electrical injuries, sudden infant death syndrome etc<sup>7</sup>. This study was planned to look for rate and its possible reasons of unascertained cause of death in exhumation carried out in above said districts.

## MATERIALS AND METHODS

This study was conducted at the Police Surgeon Office Lahore and Benazir Bhutto Shaheed Hospital Abbottabad and Khyber Medical College Peshawar during Jan 2015 to July 2019. The 311 exhumation cases were included in this study. The demographic data, fate/outcome of exhumation, time since burial, condition of the dead body and viscera sent to the chemical examiner was noted down in the design Performa. The permission of ethical committee was considered before start of study and gets publishing the data in the Medical Journal. The results were analyzed on SPSS version 10.

## RESULTS

**Table No.1: Age and Gender Distribution in Exhumation Cases**

Serial no	Age	Male	Female
1	10-20	25 (13.29%)	10 (8.13%)
2	21-30	35 (18.61%)	20 (16.26%)
3	31-40	50 (26.59%)	35 (28.45%)
4	41-50	25 (13.29%)	27 (21.95%)
5	51-60	32 (17.02%)	23 (18.69%)
6	61-70	11 (5.85%)	05 (4.06%)
7	70 and above	10 (5.31%)	03 (2.43%)
	Total	188 (100%)	123 (100%)

**Table No.2: Time since Burial in Exhumation Cases**

Serial no	Time Since Burial	Male	Female
1	1-6 months	73 (31.60%)	23 (28.75%)
2	7-12 months	54 (23.37%)	13 (16.25%)
3	1-10 years	59 (25.54%)	14 (17.5%)
4	11-20 years	25 (10.82%)	15 (18.75%)
5	21-30 years	15 (6.49%)	12 (15.00%)
6	30 years and above	05 (2.16%)	03 (3.75%)
	Total	231 (100%)	80 (100%)

**Table No.3: Condition of the Dead body In Exhumation Cases**

Serial no	Condition of Dead Body	Male	Female
1	Dead body(Identifiable)	50 (31.25%)	53 (35.09%)
2	Semi putrefaction	32 (20%)	43 (28.47%)
3	Completely putrefaction	29 (18.12%)	35 (23.17%)
4	Skeletonized	34 (21.25%)	17 (11.25%)
5	Bones Decomposed	15 (9.37%)	03 (1.98%)
	Total	160 (100%)	151 (100%)

At the age 10-20 years there was 25(13.29%) cases of exhumation male and 10(8.13%) female cases, at the age of 21-30 years the exhumation cases of 35(18.61%) Male and 20(16.26%) female cases, at the age of 31-40

**Table No.4: Causes of death on Exhumation**

S. No	Causes of death	No. of cases	Percentage (%)
01	Fire Arm injury	50	16.07%
02	Stab	25	8.03%
03	Cut throat	29	9.32%
04	Blunt injury	50	16.07%
05	Poisoning	05	1.60%
06	Asphyxia	10	3.21%
07	Undetermined	142	45.65%
	Total	311	100 %

there were 50(26.59%) male and 35(28.45%) female cases of exhumation, at the age of 41-50 years there were 25(13.25%) male and 27(21.95%) female cases of exhumation, at the age of 51-60 years there were 32(17.02%) male and 23(18.69%) female cases of exhumation, at the age of 61-70 years there were 11(5.85%) male and 5(4.06%) female cases of exhumation, at the age of 70-above there were 10(5.31%) male and 03(2.43%)female cases of exhumation were included in this study as shown in table no. 01.

Time since burial in exhumation 1-6months there were 73(31.60%) male and 23(28.75%) female, at the time since burial 7-12 months 54(23.37%) male and 13(16.25%) female, at the time since burial 1-10 years there were 59(25.54%) male and 14(17.5%) were found. At the time since burial 11-20 years there were 25(10.82%) male and 15(18.75%) female, at the time since burial 21-30 years 15(6.49%) male and 12(15.00%) female at the time since burial 30 years and above there were 05(2.16%) male and 3(3.75%) female cases of exhumation were included in this study as shown in table no.02.

The condition of the dead body at the exhumation identifiable 50(31.25%)male and 53(35.09%) female, semi putrefaction cases 32(20%) male and 43(28.47) female, completely putrefaction 29(18.12%) male and 35(23.17%) female, the Skeletonized body were34(21.25%) male and 17(11.25%) female cases, the bones decomposed 15(9.37%) male and 3(1.98%) female cases were found on exhumation as shown in table no. 03.

The cause of death on exhumation was determine as firearm injury in 50(16.07%) cases, stubborn 25(8.03%), cut throat 29(9.32%), blunt injury 50(16.07%), poisoning 05(1.60%), asphyxia 10(3.21%) and cause of death was undetermined 142(45.65%) cases as shown in table no.04.

## DISCUSSION

Exhumation though considered as sacrilege, is sometimes requested by the heirs of deceased when there are mysteries about the cause of death<sup>8</sup>. In this region the undue delay to conduct exhumation is due to fear of dishonor and elders of the family usually avoid disinterment of near and dear ones. In this study cause of death remained undetermined in two third of cases (71.5%) due to advanced decomposition of the corpse. The cause of decomposition was due to undue delay of disinterment. Our results are not similar to one national study (34% failure rate) conducted by Qazi et al in 2006<sup>9</sup>. However Memon U & Memon A<sup>10</sup> has reported higher percentage of 42.85% of cases in which cause of death could not be determined. In various German studies, failure to reach the cause of death in exhumed bodies have been reported by Verhoff et al, Seibel et al, and Grellner et al<sup>6,8,11</sup> to be 0.8%, 4.23% and 22% respectively. Higher percentage of failure to reach the cause of death in exhumed bodies in our areas is because of early putrefactive changes due to hot climate, water logging and salinity and improper drainage system around the grave yard. Furthermore in neurogenic death, no pathological changes can be detected<sup>11</sup>. High successful exhumation rates in Germany is due to delayed putrefaction of corpse because of cold season in many months of year and application of sophisticated diagnostic techniques like immunocytochemistry<sup>12</sup>.

Despite the limitations, exhumation may provide surprisingly good results about the cause of death but the same is less likely to be achieved with passage of every day<sup>13</sup>. In our study majority of bodies 30% (60) were exhumed at 5 – 8 months after the death, and most of the bodies, 50% cases were in stage of advanced decomposition or fully skeletonized. Our observations were consistent with Hussain, et al<sup>14</sup> who found advanced putrefaction in 80.4% of bodies exhumed from 4 months to 01 year after the death. However Breitmeier, et al<sup>15</sup> have shown evidence of significant morphological features in soft tissues and internal organs sufficient to diagnose the cause of death in exhumations performed after several years. Marked decomposition observed in exhumed bodies above two years after the death of persons is responsible for failing to reach the conclusion, as the cause of death is to be inferred from soft tissue in majority of cases<sup>16</sup>. But delay in putrefaction observed in European countries like Germany improves the positive yield in exhumations many months or even years after burial of deceased.

In our study male corpse were more (86.5%) than females (13.5%) in the ratio of about 4:1. This finding is comparable with one national study conducted at Peshawar where male fatalities are reported in 86.4% of cases. Females in this society being least victims of

violent deaths are due to fact that they hold honorable place even by enemies and spared from tribal and family disputes because of religious, cultural and traditional customs<sup>17</sup>. In this study majority of victims belonged to rural areas (about 71.5%), and some 28.5% were belong to urban area. Our study is comparable with Qazi ET al<sup>9</sup> who have reported rural folk involvement in 77% of cases. Regarding age our findings are in contrast with an international study conducted at U.K where the incidence of unascertained death appears higher in children and young adolescents. Predominance of rural people in our study is due to high illiteracy rate and their ignorance about codal procedures causing delay in conduct of exhumation process. More cases of middle age may be due to involvement in violent activities and this age is more vulnerable to different diseases like acute myocardial infarction where no positive findings are found on disinterment. It was also seen in this study the cause of death was more as blunt injuries of the head and chest and in 71.9 % the cause of death was undetermined due to advanced putrefaction of the corpse and non-availability of advance techniques for exhumation.

## CONCLUSION

Delayed exhumation due to lengthy legal procedures involved in carrying out this process leading to decomposition of bodies, resulting in unascertainable cause of death. Early decomposition of bodies due to multiple reasons like hot climate, water logging and salinity, improper drainage of graveyards etc. is a bar to ascertain cause of death.

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**Conflict of Interest:** The study has no conflict of interest to declare by any author.

## REFERENCES

1. Exhumation. Available at: [www.brighton-hove.gov.uk](http://www.brighton-hove.gov.uk) /Cited 15 Dec 2009.
2. Kremer C, Sauvageau A. Legally interred and unlawful Burials: A Retrospective Study of Exhumation Cases in the province of Quebec, Canada. The open Forensic Sci J 2008; 1:16-18.
3. Baden MM. Exhumation–Time of death and changes after death. In: Spitz WU, editor. Spitz and Fisher's medico legal investigation of death: guidelines for the application of pathology to crime

- investigation. 4<sup>th</sup> ed. Springfield: Charles C Thomas Publisher Ltd; 2006.p.174-83.
4. Kirishan V. Obscure Autopsy. In: Kirishan V, editor. Text book of Forensic Medicine and Toxicology. 3<sup>rd</sup> ed. New Delhi: Elsevier Publisher; 2005.p.45-54.
  5. Khan MU, Jan A, Munwar AZ, Mughal MI. Frequency of negative autopsy and their demographic evaluation at Khyber Medical College Peshawar. JPMI 2007; 21(2):132-135.
  6. Verhoff MA, Ulm K, Kreutz K, Muller KM, Stachetzki U Exhumation as a matter of fact. Int J Forensic Med and Toxi 2007; 8(1):1-10.
  7. Shapiro HA. The Medical Investigation of the cause of deaths: Sudden, Rapid and Unexpected Deaths in Adults, Children and Infants. In: Gordon I, Shapiro HA, editors. Forensic Medicine a guide to principles. 2<sup>nd</sup> ed. Edinburgh: Churchill Livingstone; 1988.p.160-179.
  8. Seibel O, Junge M, Heinemann A, Schulz F, Puschel K. Frequency and Findings of Exhumations in Hamburg. Versicherungsmedizin 1997; 59(6):209-15.
  9. Qazi A, Afraid HK, Aziz K. Exhumation; A tool to establish cause of death. Ann King Edward Med Unit 2006; 12(4):490-2.
  10. Memon U, Memon A. Necropsy after exhumation: limitations and value. Specialist: Pak J Med Sci 1995; 11:313-7.
  11. Grellner W, Glenewinkel F. Exhumations: synopsis of morphological and toxicological findings in relation to the postmortem interval. Survey on a 20-year period and review of the literature. Forensic Sci Int 1997; 90:139-59.
  12. Karrer B, Loran de la Grandma Son G, Bajanowski T, Brinkman B. Analysis of 155 consecutive forensic exhumations with emphasis on undetected homicides. Int J Legal Med 2004; 118:90-4.
  13. Necropsy after exhumation (Editorial). Br Med J 1969; 4(5674):6.
  14. Hussain Z, Ali MA, Saeed A, Khalil IR. Exhumation; analysis and forensic importance. The Professional 2002; 9 (4):347-351.
  15. Breitmeier D, Graefe-Kirci U, Albrecht K, Weber M, Troger HD, Klee Mann WJ. Evaluation of the correlation between time corpses spent in in-ground graves and findings at exhumation. Forensic Sci Int 2005; 154(2):218-223.
  16. Awan NR. Autopsy and exhumation. In: Awan NR, editor. Principle and practice of Forensic medicine. Lahore: Sublime Arts; 2002.p.118-30.
  17. Rana PA, Farrukh R, Malik SA, Rasheed A. Incidence of fatal poisoning in the city of Lahore. A retrospective study during 1984-88 Lahore. Ann KE Med Coll 2000; 6:112-15.