

## **Analytical Study of Identification Traits in Unidentified Dead Bodies**

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Received: 20-10-2022 / Revised: 11-11-2022 / Accepted: 25-12-2022

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Conflict of interest: Nil

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### **Abstract:**

The examination of deceased individuals with unknown or unidentified identities consistently presents a challenge in virtually all medical facilities specialising in post-mortem investigations. This phenomenon may be attributed to a multitude of factors, including disinterested law enforcement personnel, inadequate documentation of the case's historical context, and the occurrence of partial or complete decomposition. The determination of the cause of death in these unidentified cadavers frequently challenges the expertise of forensic professionals, as postmortem examinations often yield limited or inconclusive findings. In these instances, the process of body identification presents a significant challenge. These individuals have experienced a complete loss of personal identity, including age, place of residence, profession, and familial connections, with the exception of their gender. The current one-year study was conducted to examine the characteristics of these unidentified cadavers, including their gender, age, cause of death, origin of retrieval, and the time interval between admission to the mortuary and the autopsy procedure.

**Keywords:** Identification, Autopsy, Age, Sex, Cause of Death.

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### **Introduction**

The term "unknown body" refers to a deceased individual who lacks a legally designated representative or immediate family member who is willing and capable of making decisions regarding the final disposition of the deceased's remains [1, 2]. The examination of unidentified deceased

individuals through post-mortem procedures presents a significant challenge in various medical facilities due to the absence of proper identification. Ritter (2013) has characterised it as a "latent catastrophe of considerable magnitude" [1]. Identification is formally defined as the

process of ascertaining the distinctiveness of an individual [1]. This may be either a comprehensive or incomplete assessment if it lacks certain variables. In accordance with legal requirements, the process of identification must be conducted for individuals who are both living and deceased [2]. While the primary responsibility for this matter lies with investigative agencies, forensic experts play a crucial role in contributing to the process. Determining the postmortem identification of deceased individuals poses a persistent challenge for law enforcement agencies and governmental authorities responsible for revenue administration within our nation. This is accomplished through collaborative efforts utilising conventional and evidence-based approaches [4-8]. The forensic professionals play a pivotal role in the process of identification. Identification refers to the process of ascertaining the unique characteristics and individuality of an individual [1, 2]. It can alternatively be characterised as "the process of individualization through the assignment of a birth name or other suitable appellation to human remains" [3]. This current one-year study was conducted at the Department of Forensic Medicine & Toxicology, Andhra Medical College, King George Hospital, Visakhapatnam, with the objective of analysing the characteristics of unidentified deceased individuals. The motivation behind this research stems from the limited amount of published literature pertaining to unidentified deceased individuals in India. Establishing the identity becomes difficult when the time since death increases and decomposition sets in. During routine post-mortem various causes of death are opined such as Injuries, Poisoning, Asphyxia and Natural diseases. In case of Unknown dead bodies when Post-mortem is done after a long time due to decomposition, "No Definite Opinion regarding the cause of death" is given [9]. All the autopsy findings are incorporated and the final opinion

regarding the cause of death is given after receiving the laboratory reports.

In almost all autopsy centers little importance is given where autopsies are regularly conducted on unidentified bodies all throughout the year [10]. The case load of unidentified bodies in all autopsy centers particularly in Visakhapatnam is quite alarming. Till date, no study has been conducted in Visakhapatnam, India, regarding the unidentified bodies undergoing post-mortem examination. This article aimed to analyse the identification traits in unidentified dead bodies brought to Modern mortuary, KGH, Visakhapatnam.

## Methods

**Study design, and location:** This descriptive study was conducted during a one year period from January 2020 to December 2020 at Modern mortuary, Department of Forensic Medicine, Andhra Medical College (AMC), King George Hospital, Visakhapatnam.

**Sample population:** A total of 48 cases of unidentified dead bodies brought to modern mortuary. Information regarding post-mortem examination, inquest form, crime scene visuals and photos, RFSL and FSL reports were gathered from this mortuary.

**Inclusion criteria:** All unidentified dead bodies brought to Modern mortuary, Department of Forensic Medicine, AMC, King George Hospital, Visakhapatnam were included in this study.

**Exclusion criteria:** Cases where data is insufficient, foetus and bodies disposed without post-mortem examination were excluded.

## Results

The research cohort consisted of a total of 48 post-mortem examinations conducted on unidentified deceased individuals over a one-year period. Upon thorough examination of the inquest, autopsy reports, chemical analysis reports, and serological examination reports obtained from the A.P.

Regional Forensic Science Laboratory in Visakhapatnam, as well as the case diaries from the City Crime Records Bureau (CCRB) in Visakhapatnam City and the District Crime Records Bureau (DCRB) in

Visakhapatnam Rural District, a comprehensive analysis was conducted. The frequency distribution and its corresponding proportions are presented in the following tables and graphs.

**Table1: Distribution of Unidentified Dead Bodies in Relation to Total Number of Autopsies from 2020**

Year	Autopsies	Unidentified Dead Bodies	Percentage
2016	1782	88	5.05%
2017	1646	95	5.77%
2018	1702	98	5.75%
2019	1771	81	4.57%
2020	1495	48	3.21%
Total	8396	410	4.88%

**Table 2: Distribution of Sample with Respect to Age Group**

Age Group	Number Of Cases
1-10	0
11-20	0
21-30	3
31-40	17
41-50	18
51-60	7
61-70	3
71-80	0
Total	48

**Table 3: Study Sample Distribution in Relation to Cause of Death**

Cause of Death	No. of Cases	Percentage
Injuries	24	50%
Asphyxial Deaths	8	17%
Disease	9	19%
Undetermined	6	12%
Poisoning	1	2%
Total	48	100%

**Table 4: Study Sample Distribution with Respect to Alleged Manner Of Death**

Manner of Death	No. of Cases
Accidental	28
Natural	12
Undetermined	5
Suicidal	2
Homicidal	1
Total	48

## Discussion

Out of the 1495 medico-legal autopsies performed in the year 2020, a total of 48 cases (3.21% of the overall cases observed

during the study period) involved unidentified deceased individuals.

A significant decrease in the incidence of unidentified deceased individuals was

noted, particularly among the demographic cohorts comprising children between the ages of 1 and 10 years, school-aged children and adolescents aged 10-20 years, and the elderly population aged 70 years and above. This phenomenon was recorded throughout the duration of the Gregorian calendar year 2020. The hypothesis posited that this alteration may be attributed to the adverse effects of the virulent COVID-19 pandemic. A significant proportion of deceased individuals were observed to belong to the age cohorts of 31-40 years and 41-50 years, exhibiting the highest prevalence. This was subsequently observed in the age group of 51-60 years, constituting 15% of the recorded deceased individuals. The change in trend can be attributed to the primary sources of income within the family unit, as well as the relationship between societal productivity and these specific demographic factors. The aforementioned findings of the two studies were found to be in agreement, as outlined in the following sections. According to the observations made in the research, it was observed that the prevalence of cases displayed a discernible trend with respect to age. The age group spanning from 31 to 40 years demonstrated the highest incidence rate, with a total of 13 individuals affected. Consequently, there were eleven instances observed in each of the age cohorts spanning from 31 to 40 years, 41 to 50 years, and 51 to 60 years. Furthermore, a total of three instances were documented among individuals aged 61-70 years, one instance among individuals aged 1-10 years, and one instance among individuals aged less than one year. Significantly, there were no documented instances observed within the age cohorts ranging from 11 to 20 years and individuals surpassing the age of 70 years. In a study conducted by Singh et al., it was observed that the age cohort spanning from 21 to 40 years demonstrated the highest prevalence of cases, constituting 57.1% of the overall population. Following this, the cohort aged between 41 and 60 years exhibited the second highest

incidence of cases, accounting for 17.3% of the overall sample.

The encountered deceased individuals during the research have presented a range of diverse aetiologies, with traumatic injuries being the most commonly observed, followed by natural pathological conditions and incidents related to asphyxiation. This observed pattern may be attributed to individuals who are classified as individuals with an unknown whereabouts, experiencing a lack of stable housing, or engaging in solicitation activities. It is of significance that these populations exhibit a tendency to primarily reside in regions in close proximity to thoroughfares, consequently making them more prone to a range of vulnerabilities. The potential aetiology of mortality may have been compromised due to the subsequent phenomena of decomposition or skeletonization observed in deceased individuals. As highlighted in the research conducted by Chattopadhyay et al. [11], it was observed that the predominant factors contributing to mortality were non-accidental deaths attributed to diseases or pathological states, constituting 48.3 percent of the instances. This phenomenon was primarily observed among individuals experiencing homelessness who exhibited a suboptimal state of health. The subjects exhibited a myriad of medical conditions as a result of insufficient nourishment, inadequate shelter, and inadequate access to healthcare, ultimately resulting in their mortality. The research findings elucidate a significant association between injuries and fatalities, albeit with certain disparities. In the context of this research, it is noteworthy that drowning constituted 28.4% of fatalities, whereas motor vehicle accidents led to 39 deaths, corresponding to 6.4% of the overall population under investigation.

This study is supported by the findings reported in the research conducted by Abhishek Y. et al. [12], wherein a substantial number of individuals experienced fatal injuries as a consequence

of traumatic events, followed by mortality attributed to natural causes. Among all physiological or pathological conditions, the respiratory system has been the focus of extensive academic research. In the research conducted by Chattopadhyay et al. [11], a notable proportion of mortalities attributed to submersion incidents were observed, suggesting fatalities that deviated from anticipated physiological factors.

The current investigation establishes that the incidence of unintentional and spontaneous fatalities can be determined even in instances involving deceased individuals with unidentified identities. The aetiology of mortality remains indeterminate, potentially ascribed to the gradual consequences of putrefaction and impediments in the investigative procedure, encompassing the requisite protocols implemented to ascertain definitive identification prior to undertaking a cadaveric examination. In a study conducted by Singh et al. [13], a comprehensive analysis was undertaken to investigate several instances in which a definitive determination regarding the manner of death was unattainable due to extensive decomposition or mutilation of the cadaver. This discovery offers substantiation for the correlation between post-mortem examinations and the categorization of indeterminate manner of death. In a research conducted by Singh et al. [13], it was observed that within the North Indian population, there was a higher incidence of mortality due to natural causes among males, while instances of homicide were more frequently associated with females. This study offers corroborative evidence for the conclusions drawn by Chattopadhyay et al. [11], wherein it was posited that 36 of the cases under scrutiny exhibited characteristics indicative of homicidal causation. Although the definitive evidence pertaining to suicidal deaths remains inconclusive, it is important to highlight that incidents involving fatalities resulting from drowning, a

frequently utilised method of self-inflicted harm, demonstrated a significant likelihood of being linked to suicidal intentions.

### Conclusion

The present inquiry has revealed a consistent trend in the frequency of post-mortem examinations conducted on unidentified deceased individuals during the period spanning from 2016 to 2019. Nevertheless, in the year 2020, this prevailing pattern was disrupted due to the significant impact imposed by the COVID-19 Pandemic. There is a significant incidence of males, representing 91.67% of the documented cases, whereas females constitute merely 8.33% of the observed cohort. The age cohort spanning from 31 to 50 years exhibited a statistically significant proportion, followed by the subsequent age group ranging from 51 to 60 years, which also exhibited a noteworthy presence. It is of clinical significance that the documentation of unidentified deceased individuals across a wide range of age cohorts, encompassing paediatric, adolescent, and geriatric populations, experienced notable disruptions during the COVID-19 pandemic.

The winter season was determined to be a causative element in the deterioration of pre-existing pathological conditions, ultimately leading to the detection of unidentified deceased individuals in close proximity to the designated research site. The primary sites of occurrences are railway systems, aquatic environments, and healthcare facilities. Significantly, a case of intentional killing was recorded at a site that is open to the general public. The periods of reduced illumination during the circadian rhythm posed notable challenges in the temporal delay of identifying deceased individuals at incident locations. A significant temporal duration was observed in the identification of a deceased individual with an unidentified identity. A limited assemblage of unidentified deceased individuals was obtained with the

intention of performing post-mortem examinations.

The cadavers displayed a significant level of skeletal decomposition, with certain bodies fully skeletonized and others partially skeletonized. The delay in presenting deceased individuals for autopsy examinations has been recognised as the main factor influencing the observed decomposition, which notably took place more than four days after the time of death, indicating the most frequent instances of such phenomena. The research study documented a diverse range of mortality factors, encompassing both traumatic injuries and deaths resulting from natural causes.

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