



PREVALENCE OF HANGING DEATHS IN FORENSIC CASES IN KABUL - AFGHANISTAN

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Abstract

Background

Hanging is defined as complete or partial body suspension by a ligature tied around the neck and force of constriction on the neck applied by the body's weight hanging. It can occur in a sitting, semi-sitting, or fully reclined position. In addition to hard, semi-hard, and soft ligatures, hanging can happen with tree branches, poles, etc. Depending on the type of ligature locations, hanging is divided into two categories, which can occur typically or atypically [1]. So, this study aims to evaluate the Prevalence of hanging deaths in forensic cases at Kabul city referred to the Kabul Forensic Medicine Service Center (KFMSC) from 2020 to 2022.

Methods and Materials

This is a descriptive or cross-sectional study, which was conducted on death cases (2020-2022) that were referred to the (KFMSC). As secondary data, data was collected from the post-mortem department and analyzed using SPSS-26.

Results

According to this study, out of a total of 3,895 cases of death during the years (2020-2022) that were referred to the (KFMSC), 171 cases (4.39%) were due to hanging. Among these 171 cases, 112 cases (65.09%) were among women and 59 cases (34.91%) were among men. According to age, most cases, 97 (56.72%) were among young people aged 18 to 40. Regarding the location of the ligature's knot, 92 cases (53.80%) were at the back of the neck. In 90 cases (52.64%) didn't have any mechanical and physical trauma signs.

Conclusion

Based on this study, the majority of the hanging cases were women and young people. In most cases, the position of the ligature's knot is in the back of the neck, and an external examination has been done; in most cases, there were no signs of mechanical or physical trauma.

Keywords: Prevalence, Hanging-deaths, KFMSC.

1. Introduction

Hanging is defined as a complete or partial body suspension by a ligature tied around the neck and force of constriction on the neck being applied by the body weight hanging.

In general, hanging refers to a position within which a person hangs from the neck without support. It can occur in a sitting, semi-sitting, or even fully reclined position. In addition to hard, semi-hard, and soft ligatures, hanging can happen with tree branches, poles, car doors, etc. Depending on the type of ligature locations, hanging is divided into two categories, which can occur typically or atypically due to various factors. In hanging, death is usually due to asphyxia, cerebral anoxia, or vagal inhibition leading to cardiac arrest or injury to the spinal cord as observed in judicial hanging where deaths are due to fractures or dislocations of the C2, C3, and C4 vertebrae [1]. Although the causes of hanging in human societies are different based on various psychological, security, social, geographical, and cultural factors, and so far no comprehensive research has been conducted at the country level in this field, so it is necessary to conduct research in this field.

This study aims to establish a correlation between suspension and the accessibility of information regarding age, gender, the locations of the ligature's knot, and the presence or absence of mechanical and physical trauma signs in cases referred to the Kabul Forensic Medicine Services

Center for examination over three years (2020, 2021, and 2022). As suspension is one of the severe and critical forms of mechanical asphyxia, it can lead to permanent disabilities, damage to brain tissues, destruction of soft tissue and vessels in the neck, and even death. Additionally, incidents of suspension have been observed with mental health issues, social problems, domestic violence, security concerns, economic challenges, and sexual assaults [1]. On the other hand, no comprehensive study has been conducted regarding the prevalence of deaths due to hanging cases, which is referred to the Kabul Forensic Medicine Services Center. Therefore, it is necessary to carry out a comprehensive and extensive study on this issue and the results of this research will provide information to detective, investigative, and judicial organs concerning the incidence of forced deaths due to hanging and the factors that contribute to these incidents, categorized by the respective regions and districts of Kabul city. This information can then be used in security and law enforcement programs to help mitigate the conditions that facilitate such incidents.

According to a study published by Nirmal Nagar and Binaya K Bastia regarding hanging-related deaths in October 2022 in India, they conducted a retrospective four-year study at the All India Institute of Medical Sciences (AIIMS), Rishikesh, and Uttarakand on bodies that had died from hanging, covering the period from October 2018 to July 2022. The research revealed that during the mentioned years, approximately 1,720 death cases were

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brought to the aforementioned departments for autopsy examinations, of which around 130 (7.56%) were due to hanging. The cases were more prevalent among men than women, with a male-to-female death ratio of 3.33:1. The study found that hanging incidents predominantly occurred in individuals in their third decade of life. In terms of seasonal variation, the research indicated that most hanging-related deaths occurred during the summer season [2].

Another study was conducted by Tanuj Kanchan and Ritesh Menezes from January 1997 to December 2006 as a retrospective study over the past 10 years on bodies brought for autopsy to the Department of Forensic Medicine and Toxicology at Kasturba Medical College in Manipal, South India. In this study, a total of 70 cases of suicide by hanging were identified during the period (January 1997 to December 2006). The results of this study indicate that the majority of deaths were male, with a male-to-female ratio of 2:1. The highest numbers of hanging victims were Hindu ethnicity, and in terms of age, most incidents occurred in individuals in their third decade of life. The highest mortality rate was observed during the summer months [3].

Another related study was conducted by Nattapong Tulapunt, Swarin Phanchan, and Vichan Peonim in a descriptive-retrospective manner. They studied approximately 244 cases of hanging referred for autopsy to the Department of Forensic Medicine and Pathology Section of Ramathibodi Medical University and Mahidol University in Bangkok, Thailand, from January 2001 to December 2013. The findings of this study, which was published in 2017, revealed that there were 197 cases (80.7%) among men and 47 cases (19.2%) among women. The average age of the cases ranged from 14 to 93 years. External examinations of the deceased showed protruding tongues, facial congestion, minor bleeding in the face, and bruising in the neck. There was no significant seasonal variation in the occurrence of these cases. However, the majority of incidents occurred in April and July, which fall within the summer season [4].

Another study conducted by Maria Cristina Russo, Andrea Verzeletti, Mauro Piras, and Francesco De Ferrari was a retrospective study on over 260 fatal cases of hanging that were brought to the Brescia Institute of Forensic Medicine in Northern Italy for examination over 33 years, from 1983 to 2015. Among these cases, almost all were classified as suicides, with one case of murder and one case of accidental suffocation during sexual activities. In terms of gender, 82% of the victims were male and 18% were female. The highest number of incidents was observed in the age group of 41 to 50. The most cases occur at home, followed by isolated. This study had access to all the facilities of Kabul Forensic Medicine Service Centers with an official letter from the Kabul University of Medical Sciences (KUMS) Research Center. This study is not based on

3. Results

This study showed that during the years 2020-2022, a total of 3895 deaths were referred to the Kabul Forensic Medicine Service Center. Among them,

outdoor locations. The most frequently used ligature was rope, and in the majority of cases, no signs of struggle were found [5].

Another study was conducted by Dalia Abd-Elwahab Hassan, Sherein S Ghaleb, Heba Kotb, Mervat Agamy, and Magdy Kharoshah in 2013 in the city of Quetta, Pakistan. They retrospectively analyzed the records of bodies at the Quetta Medico-Legal Institute from 2010 to 2012. They wanted to make documents of hanging fatality characteristics in Quetta city. This retrospective study focused on 118 cases of suicide by hanging that were brought to the Quetta Forensic Medicine Services Center between 2010 and 2012. Of this number, 86 individuals (73%) were men and 32 (27%) were women. The trend of hanging incidents was high among individuals aged between 21 and 50 years (87.3%) but the third decade of life represented the largest number of victims (approximately 43%) across all age groups. Local residents of Quetta accounted for a small portion of the hanging cases which included 7 individuals (5.9%), while the majority of cases were foreign nationals who were working in Quetta with Indian identities, which included 54 individuals (54.8%). Additionally, individuals from 12 other nationalities (39.3%) made up the remaining cases. Furthermore, the trend of suicides by hanging in Quetta decreased from 44 cases in 2010 to 25 cases in 2012 [6].

2. Method and Material

A descriptive or cross-sectional study has been conducted on the death cases between (2020-2022) that were referred to the Kabul Forensic Medicine Service Center. Data was collected from the post-mortem department, as secondary data, and the information was analyzed using SPSS-26 and Microsoft Excel programs. After approval by the institutional review board for ethical issues of Kabul University Medical Science this study has been conducted at Kabul Forensic Medicine Service Center, 2024.

Among all recorded fatal cases referred to the Kabul Forensic Medicine Services Center during 2020-2022 just all fatal cases due to hanging were included in this study that referred to the Kabul Forensic Medicine Services Center for examination. Other fatal cases were excluded from this study. The Major Variables of this study are Age, Gender, Location of the ligature's strangulation Knot, and presence or absence of signs due to physical and mechanical trauma.

Also, the data collection sources or research tools were Registry books, Databases of the post-mortem department, Forensic medicine reports, Documents related to fatal cases, Facilities in the autopsy room, and Data collection forms.

information that causes ethical and privacy violations, so there are no limitations.

171 deaths (4.39%) were caused by hanging and 3724 deaths (95.61%) were caused by other factors chart [1].

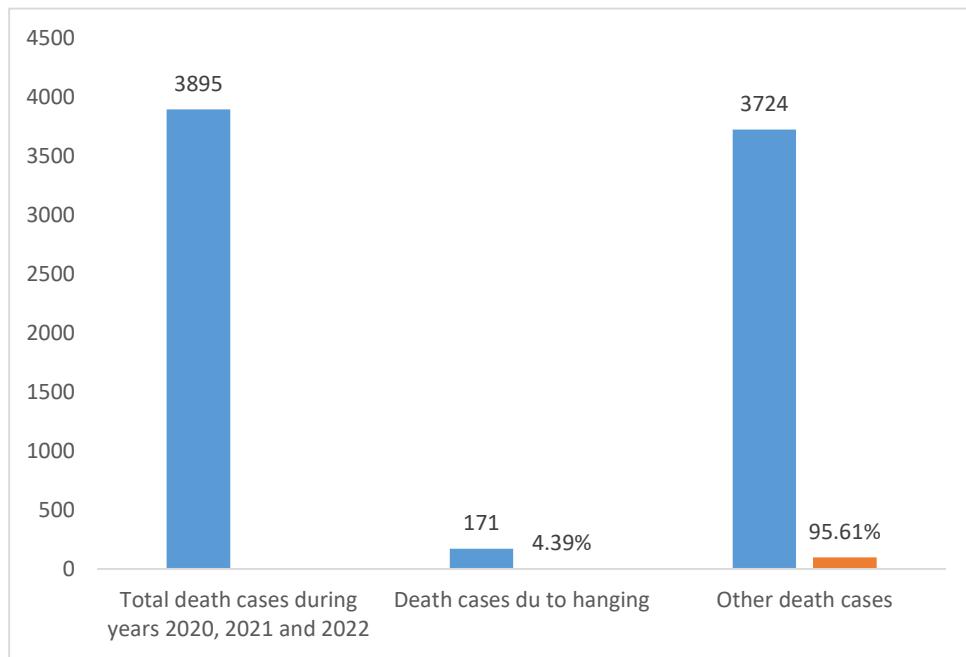


Chart [1]. Showing deaths by hanging and others.

In terms of gender, it has been established that out of the total 171 hanging death cases, the majority of cases, specifically 112 cases (65.09%) were among women, while 59 cases (34.91%) were among men chart [2].

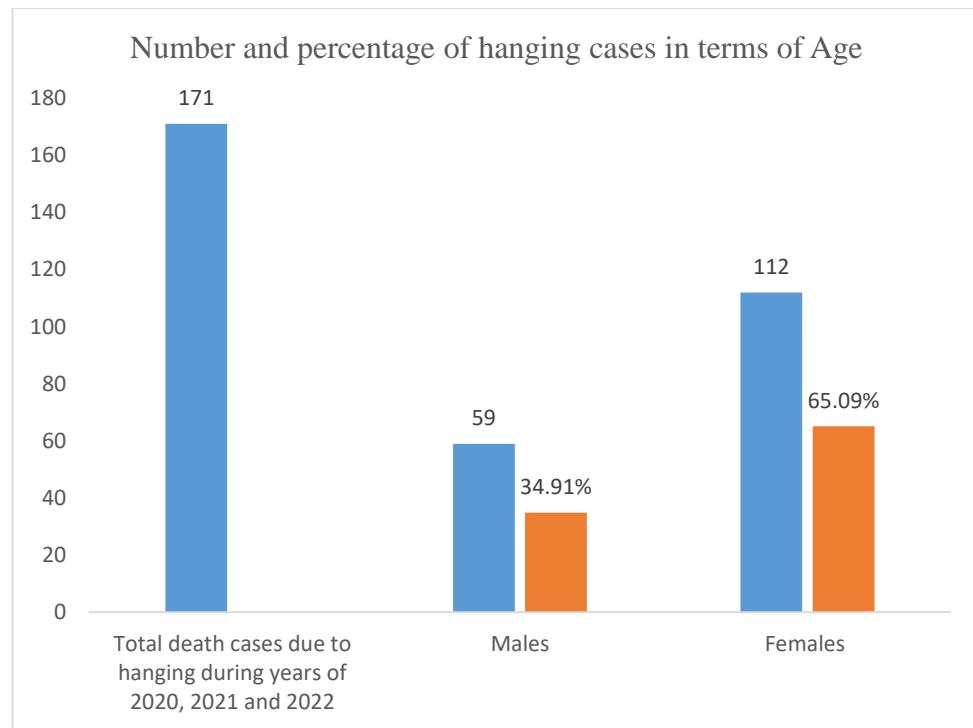


Chart [2]. Showing, number and percentage of cases in terms of gender.

Regarding age, the total incidents have been categorized into five age groups: childhood (ages 1-12), adolescence (ages 12-18), young adulthood (ages 18-40), middle age (ages 40-60), and elderly (over 60 years). There were 27 cases (15.78%) in the adolescent age group, 97 cases (56.72%) in the young adult age group, 28 cases (16.37%) in the middle-aged group, and 19 cases (11.13%) among the elderly. Thus, in terms of age, the majority of hanging deaths occurred in the young adult age group (ages 18-40) chart [3].

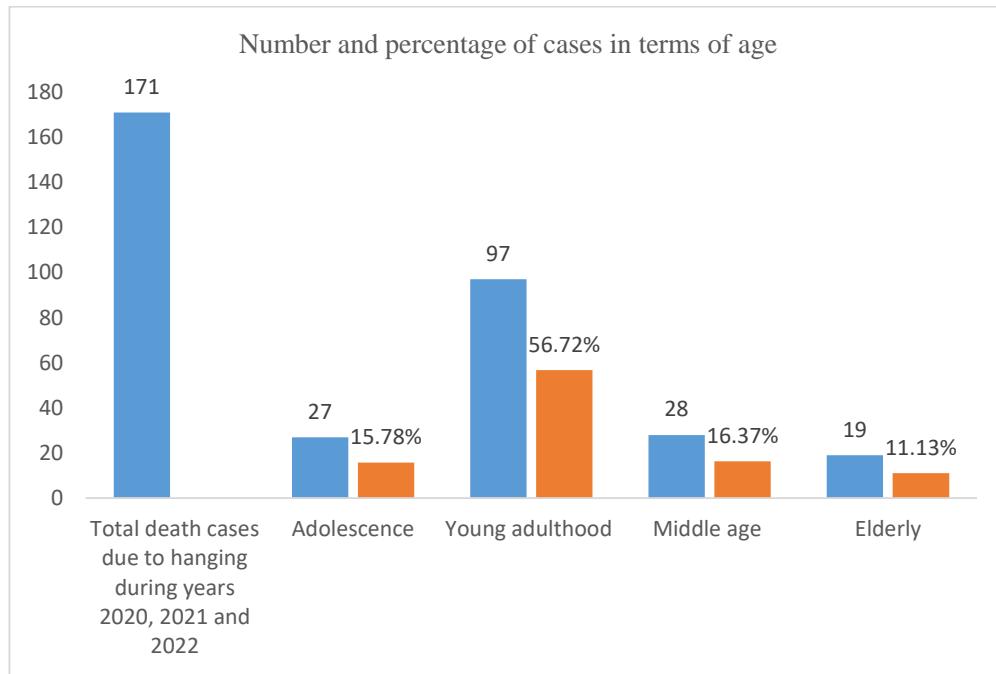


Chart [3] Number and percentage of cases in terms of age.

According to the locations of the ligature's knot, in 92 cases (53.80%), at the back of the neck, in 40 cases (23.39%) on the left side of the neck, in 37 cases (21.63%) on the right side of the neck, in 2 cases (1.18%) It was located in front of the neck chart [4].

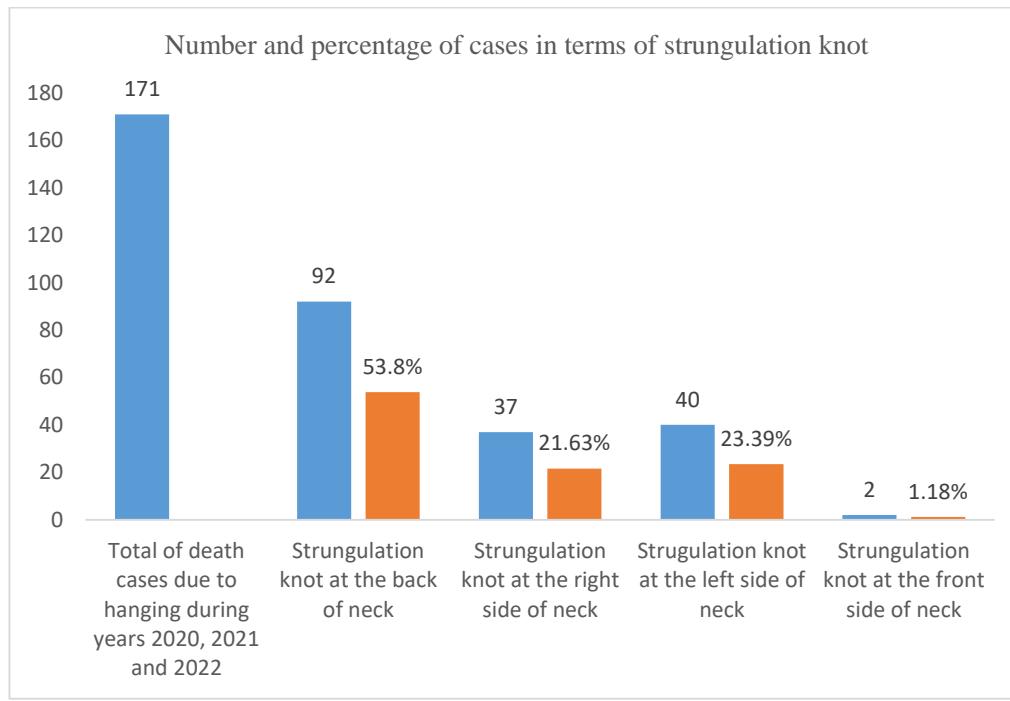


Chart [4]. Showing, number and percentage of cases in terms of strangulation knot.

Likewise, out of 171 cases of deaths caused by hanging, during the external examination of the dead bodies in 81 cases (47.36%), signs of physical and mechanical trauma caused during a struggle, such as excoriation, ecchymosis, laceration, etc. were determined in different parts of their bodies. However, in 90 cases (52.64) no signs of physical and mechanical trauma were determined chart [5].

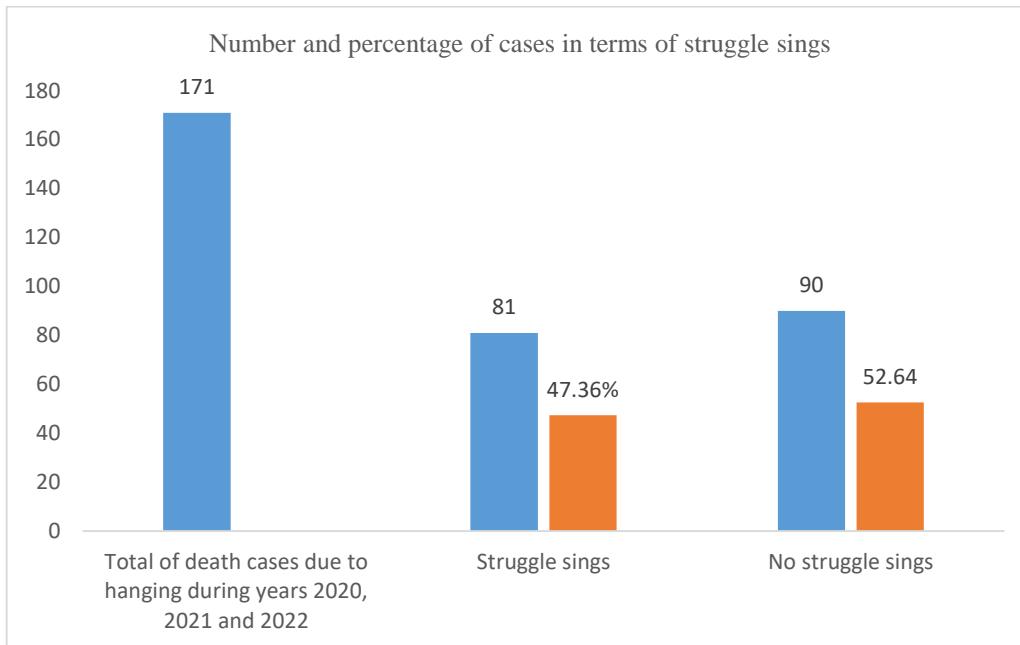


Chart [5]. Showing, number and percentage of cases according to struggle sings.

4. Discussion

This study aims to investigate the bodies caused by hanging in terms of age, gender, locations of ligature of knot, and the presence or absence of knots due to physical and mechanical trauma caused during struggle among those deaths. The bodies were referred to the Kabul Forensic Medical Services Center (KFMSC) for forensic medical examinations during the years 2020, 2021, and 2022. The results of this study show that during the mentioned years, among 3895 deaths, 171 cases (4.39%) were due to hanging cases. They were referred to the Kabul Forensic Medical Service Center, a significant discrepancy compared to pieces of literature for example [2]. One reason for this discrepancy could be that most causes of hanging deaths in literature occurred as suicide, but in our country based on the Islamic religion, suicide is prohibited and avoided, so it is not permissible to perform funeral prayers for individuals who have died by suicide, and it is possible that in some cases the issue of suicide was concealed by the relatives of the deceased and those cases were not referred to the KFMSC. Out of the 171 death cases due to hanging, 112 cases (65.09%) occurred among females and 59 cases (34.91%) occurred among males. This indicates a higher incidence among females, which is often inconsistent with the literature and reflects a significant difference [2, 4]. Various factors may contribute to this, including psychological, economic, and social issues, particularly forced marriages, family violence, job loss, or educational challenges.

In terms of age, 97 cases (56.72%) represent the highest incidence among young individuals, which shows a notable difference compared to the literature for example [6, 4, and 5]. The reasons may include social disarray, poverty, unemployment, domestic violence, and forced marriages.

Similarly, in the majority of cases, specifically 92 (53.80%), the position of the ligature's knot was found at the back of the neck, which is common in suicides and is similar to the literature [2].

According to the struggle signs, in 90 cases (52.64%), no signs of struggle were observed upon external examination, which is consistent with the findings in the literature [5].

The strength of this research is that this research was conducted at one of the important centers for examining forensic cases, namely the Kabul Forensic Medicine Services Center (KFMSC), the data were accessible

through the study of register books of death cases and the conclusion of forensic reports which are available in the database of the KFMSC. It should also be noted that this is the first time a study has been conducted regarding fatalities caused by hanging in KFMSC.

The weaknesses of this research are that this research was carried out only at one center to examine forensic death cases, specifically the Kabul Forensic Medicine Services Center (KFMSC). Some suggestions should be considered in the future:

- It is necessary to conduct detailed investigations into other aspects of fatal incidents caused by hanging at the national level. This will help to identify the factors and motivations involved, and effective measures can be taken to prevent these tragic incidents, which often affect the youth of the country.
- According to the findings of this research, it is essential to take necessary actions regarding raising awareness and addressing hanging incidents.
- It is necessary to do analytic researches based on the correlation of hanging with other causes of death due to asphyxia.

5. Conclusion

According to this study, the majority of the hanging cases were women and young people. In most cases, the position of the ligature's knot is in the back of the neck, and an external examination has been done; in most cases, there were no signs of mechanical or physical trauma.

Ethical approval

The manuscript was approved by the institutional review board for ethical issues of research by the Research Center board of Kabul University of Medical Sciences.

Author contribution

Concept – HBN; Corresponding Author – HBN; Design – KH; Resources and data collection – HBN; Literature search – MYY; Writing Manuscript – AMP; Critical Review – AMP. Everyone have read and approved the final manuscript.

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