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Comparative Analysis of Autopsy Case Characteristics Before and During the COVID-19 Lockdown at DHQ Sahiwal

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ABSTRACT

COVID-19 has impacted all spheres of life during the pandemic era. It not only affected health but also impacted the socioeconomic conditions of our lives. In hospitals, autopsies continued to be conducted during the pandemic. The Lockdown has not impacted autopsy conduct in hospitals. **Objective:** To compare and identify various characteristics of autopsies conducted in 2019 and 2020. **Methods:** An observational retrospective study was conducted from 15th March 2020 to August 2020 and from 15th March 2019 to August 2019 in DHQ Sahiwal. Data were analyzed through SPSS 27. **Results:** A total of 257 autopsy cases were collected, of which 114 cases were referred in 2019, while the remaining 143 cases were from 2020. The most prominent cause of death in 2019 and 2020 was trauma, at almost 64% and 63.6%, respectively. The highly prevalent manner of death was homicidal, in 2019 it was 47.4%, and in 2020 it was 46.2%. **Conclusions:** It was concluded that the COVID-19 lockdown did not significantly influence the character of the autopsy cases that were referred to DHQ Sahiwal.

INTRODUCTION

COVID-19, caused by the novel coronavirus SARS-Cov-2, emerged in late 2019 and rapidly evolved into a global pandemic, significantly affecting health, economies, and daily life worldwide [1]. The Government implemented various public health measures, including lockdowns, social distancing, and mask mandates, to curb the virus's spread. Health systems faced unprecedented challenges, with hospitals overwhelmed and healthcare workers under immense stress [2]. The pandemic highlighted existing disparities in healthcare access and outcomes, disproportionately affecting marginalized communities [3]. As medical professionals sought to understand the effects of COVID-19, there was a rise in the demand for autopsies to investigate causes of death, particularly in cases where COVID-19 was a factor. Understanding the pathology of the virus and its complications helped in developing treatment protocols and improving patient care [4]. Autopsies, also known as post-mortem examinations, are medical procedures carried out to determine the cause of death and assess any disease or injury present in the deceased. The key characteristics of autopsies are to determine Cause of Death by Identifying underlying

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conditions or diseases, to conduct research and provide education by contributing to medical knowledge, not only in the field of Pathology, Clinical Practices but also in the field of Forensic Medicine and Toxicology, and ultimately to produce Legal Evidence by providing information for criminal investigations or insurance claims [5]. In autopsies, cause of death and manner of death are two distinct but interrelated concepts that help provide a comprehensive understanding of how and why an individual died [6]. The cause of death refers to the specific medical condition or injury that led directly to the death. This can include: Diseases or medical conditions such as heart disease, cancer, pneumonia, or complications from existing health issues; Unintentional injuries, such as those resulting from car accidents, falls, or overdose; Death resulting from self-inflicted harm; Death due to intentional injury inflicted by another person and Situations where the specific cause cannot be conclusively established. The manner of death classifies the circumstances surrounding how the death occurred. It typically falls into one of five categories: Death resulting from natural causes, such as disease or old age, Death caused by unintentional injuries, Death intentional by self-harm or overdose with the intent to end life, Death resulting from actions taken by another individual with intent to kill, Situations wherein the manner of death cannot be clearly classified, or often due to insufficient information. Clearly determining the cause and manner of death is essential in forensic cases, influencing criminal investigations, insurance claims, and public health statistics. Understanding prevailing causes and manners of death can help identify health trends, inform preventive measures, and guide medical research. Providing accurate cause and manner of death assists families in understanding the circumstances of their loved one's passing, contributing to the grieving process [7]. Therefore, the distinction between cause and manner of death is crucial in autopsies, offering a complete picture of the circumstances surrounding an individual's death. This information is vital not only for medical knowledge and legal purposes but also for public health initiatives and supporting families in their time of loss.

This study aims to compare and identify the characteristics of cases referred for an autopsy to DHQ Sahiwal during the lockdown period in 2020 versus the cases referred during the same period in 2019.

METHODS

An observational retrospective study was carried out at the District Headquarters (DHQ) Hospital, Sahiwal. Ethical approval was obtained from the Ethical Review Committee, Ref. no: 11046 STH/SWL, DHQ hospital, Sahiwal. The sampling technique employed was non-probability convenience sampling. Retrospective data from 15th March 2020 to August 2020 and 15th March 2019 to August 2019 were collected from the autopsy register at DHQ hospital on a designed autopsy form. Data from all the medico-legal postmortem cases during the above-mentioned period were collected. However, postmortem data of drug addicts were excluded from this study. All data were entered and analyzed using SPSS version 27.0. Normality tests were performed for continuous variables, and sample size calculation was done using $n=NxZ^2xpx(1-p)/e^2/ [N-1+ Z^2 xpx(1-p)/e^2]$. For qualitative variables, the chi-square test was applied. For quantitative variables, a t-test was used. A p-value less than 0.05 was considered significant.

RESULTS

A total of 257 autopsy cases were collected, of which 114 cases were referred in 2019, while the remaining 143 cases were from 2020. The mean age of the cases analyzed in 2019 was 35.58±16.65 years, with a male predominance (75.4%). In 2020, the mean age was 34.19±15.86 years. Regarding gender, there was a slight increase in female cases in 2020 (28% vs 23.7% in 2019). However, this increase was not found to be statistically significant (p-value 0.421). The majority of cases were referred from urban centers in both 2019 and 2020, and it was found to be statistically significant (p-value 0.011). There was no significant difference between the cause of death and the manner of death between the two time periods examined. Regarding the manner of death, an increase in undetermined deaths in 2020 was observed, but there was no statistical significance. In both years, recorded cases of deaths from road traffic accidents were fewer (Table 1).

Table 1: Inferential Data regarding Variables in 2019 and 2020

Autopsies Performed	2019 (n=112)	2020 (n=137)	p-value
Age (Mean/Median+-SD)	(35.58/33+-16.65)	34.19/35+-15.86)	0.425
Gender n (%)			
Male	86 (75.4%)	101 (70.6%)	0.475
Female	27 (23.7%)	40 (28%)	
Age Group (Years)			
0-9	3 (2.6%)	7 (4.9%)	–
10-19	12 (10.5%)	14 (9.8%)	
20-29	29 (25.4%)	29 (20.3%)	
30-39	33 (28.9%)	46 (32.2%)	
40-49	10 (8.8%)	18 (12.6%)	
50-59	13 (11.4%)	12 (8.4%)	
60-69	8 (7%)	7 (4.9%)	
70-79	3 (2.6%)	2 (1.4%)	
80-89	0 (0%)	1 (0.7%)	
90-99	1 (0.9%)	1 (0.7%)	
Cause of Death			
Trauma	73 (64%)	91 (63.6%)	–
Asphyxia	12 (10.5%)	12 (8.4%)	
Burn	0 (0%)	2 (1.4%)	
Poisoning	9 (7.9%)	9 (6.3%)	
Unknown	14 (12.3%)	14 (9.8%)	
Medical	3 (2.6%)	4 (2.8%)	

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Manner of Death			
Suicide	16 (14%)	21 (14.7%)	–
Homicide	54 (47.4%)	66 (46.2%)	
Accidental	2 (1.8%)	4 (2.8%)	
Undetermined	29 (25.4%)	42 (29.4%)	
Natural	11 (9.6%)	6 (4.2%)	
Location			
Urban	87 (77.67%)	98 (71.53%)	0.011
Rural	25 (22.32%)	39 (28.46%)	

DISCUSSION

The findings of our study suggest that the COVID-19 lockdown did not significantly influence the character of the autopsy cases that were referred to DHQ Sahiwal. However, compared to 2019, we noticed a slight increase in female cases and undetermined deaths. Moreover, the deaths attributed to road traffic accidents were almost none during the lockdown period. According to a study conducted in India from 17th January to 31st May 2020, the number of RTAs was reduced to almost none during the COVID-19 pandemic lockdown [8]. Another study, which was conducted in Turkey during the COVID-19 pandemic lockdown in 2020, elaborated that there was a decline in the number of Road traffic accidents during the months when the 'stay at home' order was implemented [9]. Increased homicidal cases were observed in 2020 as compared to 2019. It could be due to a variety of factors, like unemployment, socioeconomic losses and adverse health conditions [10]. For cases about causes of death, trauma demonstrated a high prevalence in both years. An increase in female cases was observed, which, despite not being significant, could be an indicator of rising rates of femicide. A study reported a global rise in femicide during the COVID-19 lockdown period [11]. Another study commented on a surge in domestic violence cases during the COVID-19 lockdown [12]. It is naturally assumed that an increase in domestic violence will also increase femicide [13]. Femicide is a form of gender-based violence and should not be classified as a homicide. The increase in femicide is accounted for by the fact that more women were forced to stay with their abusers and had no safety net due to the shutdown of shelter homes. One study suggested that social isolation can increase the likelihood of violence in households [14]. There is also evidence in the literature to suggest that male unemployment is positively correlated with an increase in domestic violence [15]. As many people experienced economic losses during the COVID-19 lockdown, it could be one of the contributing factors to the rise in femicide [16]. During both years, cases of suicide and accidents were fewer in number, and it also reflects the fact what effect lockdown had on the lives of people [17, 18]. But the undetermined deaths were increased in 2020 as compared to 2019, by almost 29.4% and 25.45%, respectively. It is another crucial aspect that many people do not allow for the conduction of an autopsy of their loved ones, and it is a general hesitation which can be due to social or belief reasons [19]. It is also demonstrated in this study that the majority of the cases belonged to urban areas in both years. This fact also complements the idea of people avoiding autopsy conduction in the majority of the rural areas [20].

CONCLUSIONS

It was concluded that there is no significant change in the autopsy cases in both years, especially the characteristics of autopsy cases remained almost the same in 2019 and also in 2020. The cause of death and the manner of death remained the same in comparison of both years, although rates of cases suicidal and accidental were decreased, but homicidal cases were a little on the higher side.

Authors Contribution

Conceptualization: NH
Methodology: NH
Formal analysis: SHZ
Writing review and editing: TM, AR, AZ, SGS
All authors have read and agreed to the published version of the manuscript

Conflicts of Interest

All the authors declare no conflict of interest.

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