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# A terrifying problem: healthcare professionals' homicides

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## Abstract

**Background:** As in all over the world, healthcare professionals in Turkey are increasingly affected by violence. The purpose of this study was to evaluate homicide, which is the most severe form of violence against health care professionals.

**Methods:** Information regarding characteristics of the incidents, victims, and perpetrators were gathered from the media reports subjecting murders of healthcare professionals between 2000 and 2019 were compiled and discussed with descriptive statistics.

**Results:** There were 60 homicides involving health professionals (35 male, 25 female) between 2000 and 2019. Homicides of health professionals were found to have increased significantly between 2015 and 2019. The most common crime scene was the victim's workplace, whereas the most common method of homicide was the use of firearms. In female healthcare professional homicides, the murderer was a former or existing partner in most cases.

**Conclusions:** The assessment of cultural factors, and the performance of various studies to prevent homicide of health professionals is crucial. Policies against individual weaponry and the prevention of armed persons entering healthcare facilities could be useful. In addition, regulations prohibiting targeting health professionals as a scapegoat for system failures will help address this problem.

**Keywords:** Homicide, Homicide in health care, Violence against health care professional, Forensic medicine

## Background

Violence, crime, and social problem are seen in all areas of life, and their incidence is higher among professionals that are constantly interacting with people (Gillespie et al. 2010). The health care workers take place among such professionals. According to WHO, the rate of healthcare professionals who have been subjected to violence, at least once in their lifetime, varies between 8% and 38%, around the world. In addition, according to the National Institute for Occupational Safety and Health, healthcare professionals are the most vulnerable to workplace violence, and hospitals are the public places where

violence against employees takes place commonly (Shea et al. 2017; Sun et al. 2017). Although healthcare professionals are mostly exposed to psychological violence, the risk of physical violence is stated to be seven times higher for healthcare professionals (Mento et al. 2020).

Turkish Statistical Institute (TURKSTAT) data showed that there is a significant increase in deaths due to violent acts, which even affects the forensic case profile of the Turkey (Akçan et al. 2019). Increasing incidents of violence, potentially increase the use of violence by people who experience or witness the violence, and this can cause a chain of violence that spreads throughout the society (Mercy et al. 2017). Although investments in healthcare have increased, especially over the last two decades, it is interesting to note that violence against healthcare professionals has also increased in parallel. In a study conducted by Baykan et al. (Baykan et al. 2015), it has been stated

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that 86.4% of the medical doctors participating in the study reported that they had been subjected to violence at least once in their lifetime, while 26.8% of them had experienced physical violence. In addition, it is reported that nearly half of the healthcare professionals in Turkey are exposed to violence every year (Bayram et al. 2017). Turkey has seen the most brutal outcome of the violence, homicide of healthcare professionals, by their patients or patients' relatives for the first time in recent years.

As a type of document analysis papers, media-based (newspaper, social media, etc.) data assessment is utilized as a research method in the literature, particularly for topics or case series that related-data cannot be reached from official archives or institutional sources (Dokur et al. 2018; Gioia et al. 2020; Özdemir and Yurtsever 2021). It is known that violence against healthcare professionals is discussed in detail in the literature. However, homicidal deaths of healthcare professionals in Turkey are not subjected to the literature. Since there is no institutional data or report, this study aims to discuss homicidal deaths of healthcare professionals by examining cases reported by media agencies in the past 20-year period in Turkey.

## Methods

In this study, nationwide public news from Turkey about healthcare professionals killed during the 20-year period between 2000 and 2019 were included and analyzed. The selected and analyzed news about violent incidents were obtained through various internet search engines using Turkish keywords such as "*sağlık çalışamı cinayeti*" (healthcare professional homicide), "*doktor cinayeti*" (doctor's homicide), and "*hemşire cinayeti*" (nurse homicide). These internet searches were repeated considering each branch of healthcare professionals (including pharmacists, midwives, dentists, medical and laboratory technicians, and medical officers). Homicide cases were evaluated in respect of age and sex of the victim, place of the homicide (such as home, hospital (including ambulances for paramedics), and out of the hospital), city, urbanity or rurality of the place, type of the victim's workplace (state hospital, private hospital, or university hospital), the profession of the victim, the relationship between the murderer and the victim (partner/spouse, colleague, patient, unknown person, etc.), the sex of the murderer and the weapon/method used in the homicidal act. Criteria that we could not reach for the cases were labeled as unknown and included in the descriptive statistics. Cases that were certain to be a homicide as the manner of death were included in the study, and cases with suspicions in terms of the manner of death were excluded from the study.

## Results

A total of 60 healthcare professionals (35 males (58.3%) and 25 females (41.7%)) who were reported as a victim of homicide between 01 January 2000 and 31 December 2019 were included in the study. The mean age at the time of death was 38.2 years (SD = 12.8 years) for all cases, while the average was 41.7 years (SD = 11.3 years) for males and 32.7 years (SD = 9.8 years) for female victims. Detailed information about the victims is presented in Table 1.

The characteristics of the perpetrators, the relationship between perpetrators and the healthcare professionals, and the information about homicidal incidents are shown in Table 2.

The number of homicide incidents of healthcare professionals which is examined by years ranged between 1 and 3 cases/year from 2000 to 2014 and showed a relatively stable course; however, it has increased significantly after the year 2015 (Fig. 1).

Seven (11.7%) victims of homicide were killed by their patients or patients' relatives. While there was no murder of healthcare professionals killed by patients or their relatives in the first three-quarters of the study period, it was observed that such murders were committed only in the last 5 years. In 3 of these cases, a patient with a diagnosed psychotic illness committed the homicide; in 2 of them, the perpetrators suffering from drug addiction killed the healthcare professionals who did not provide the drug they demand, and in the other 2 cases were killed by the perpetrators who stated that they attacked to take revenge of their relatives who allegedly died during the treatment.

It was determined that 6 (10%) of the perpetrators had a previously known psychotic disorder. Except for a case who killed the victim by stabbing, all these perpetrators with a known psychotic disorder ( $n = 5$ ; 83.3%) preferred firearms as the method of murder.

It was determined that the most frequent scenarios are that the perpetrators have no previous relationship with the murdered male healthcare professional ( $n = 8$ ; 22.9%) and the use of firearms as a method of homicide. The results also showed that the most common murderers of female victims were their spouses/partners ( $n = 15$ ; 60%), in which the most common murder method was the use of firearms ( $n = 16$ ; 64%). In addition, it was seen that two cases who died from homicidal suffocation were women.

## Discussion

Violence against healthcare professionals, which can sometimes be normalized even by healthcare professionals (Jones and Lyneham 2000), is a widespread and important problem all over the world today. In the last

**Table 1** Data about the sex, age, job, and working institution of the victims

<b>Sex of victims</b>	Male		<i>n</i> = 35	58.3%
	Female		<i>n</i> = 25	41.7%
	Total		<i>n</i> = 60	100%
<b>Age at death (mean and SD)</b>	Male		41.7 years	SD = 11.3
	Female		32.7 years	SD = 9.8
	Both genders		38.2 years	SD = 12.8
<b>Job title</b>	Medical doctor		<i>n</i> = 19	31.7%
	Family medicine	<i>n</i> = 4 (21.1%)		
	General practitioner	<i>n</i> = 3 (15.8%)		
	Chest diseases	<i>n</i> = 2 (10.6%)		
	Others	<i>n</i> = 10 (52.7%)		
	Nurse		<i>n</i> = 19	31.7%
	Pharmacist		<i>n</i> = 10	16.7%
	Technician		<i>n</i> = 5	8.3%
	Other		<i>n</i> = 7	11.7%
	<b>Working institution</b>	State hospital		<i>n</i> = 22
Private institution			<i>n</i> = 11	18.3%
University hospital			<i>n</i> = 9	35%
Others <sup>a</sup>			<i>n</i> = 12	20%
Total			<i>n</i> = 60	100%

<sup>a</sup> Others include population health services, emergency care units, health services stated in military units, and retired healthcare professionals

two decades, the percentage of violent incidents toward healthcare professionals has been increasing worldwide (Li et al. 2019; Pinto et al. 2018). It is known that incidents of violence against healthcare professionals have been increasing in recent years, in Turkey (Akçan et al. 2019; Özcan and Yavuz 2017). In addition, Turkey has started to experience, for the first time, homicides of healthcare professionals by their patients or relatives of a patient, in the last decades. However, until now, the deaths of healthcare professionals due to violence have not been studied in detail. Furthermore, there is a lack of institutional approach in terms of evaluating this issue. This study shows that homicide cases of healthcare professionals have increased sharply over the past 5 years in Turkey by confirming the results about increment in the violence in the health sector of previous studies. Violence against healthcare professionals has a cultural and social basis as any other type of violence, and on this basis, in cases of violence against healthcare professionals, the reactive behaviors of the healthcare professional and the perpetrator, the large number of patients demanding service from health institutions, the waiting time of the patients and their relatives to reach medical care, as well as use and addiction of illicit drug and/or alcohol addiction, psychiatric disorders of the perpetrator that may affect ones behaviors play an important role in the orientation of the violent behavior towards the healthcare professionals (Lau et al. 2012; Medley et al. 2012). Several

studies were carried out in the literature to evaluate all these factors and propose methods to prevent the violence by informing the healthcare professional about the person's tendency to commit violence (Drummond et al. 1989; Kling et al. 2011; Nachreiner et al. 2005). A study the regarding prevention of violence against healthcare professionals by the alarm system showed that this system is valuable and useful in raising awareness about the risk of exposure to violence among healthcare professionals and assessing the risk of violence against them (Kling et al. 2011). Serious constructive steps should be taken in this regard in Turkey. Unfortunately, one of the most debated issues in Turkey is the legislation regarding the punishment of the perpetrator. A recent study showed that (Yeşilbaş 2016) the penalties imposed on individuals who perpetrate violence against healthcare professionals are not sufficient, and the imposition of heavier penalties might reduce the occurrence of violence. In addition, it was stated that it is crucial and necessary to avoid content that may reflect that violence against healthcare professionals is acceptable through the written and visual media and to provide information on the sanctions against those who perpetrate violence against healthcare professionals through the media to the public (Terkeş et al. 2021). Additionally, it is a common approach for politicians, local and national authorities, and media organs to target healthcare professionals for possible administrative and politics-related failures. Therefore,

**Table 2** Data about the perpetrators and homicidal incident

<b>Sex of perpetrator(s)</b>	Single male	<i>n</i> = 48	80%
	Multiple males	<i>n</i> = 2	3.3%
	Male and female	<i>n</i> = 1	1.7%
	Unknown	<i>n</i> = 9	15%
	Total	<i>n</i> = 60	100%
<b>Perpetrator-victim relationship</b>	Spouse/partner	<i>n</i> = 15	25%
	No prior relationship	<i>n</i> = 10	16.7%
	Colleague	<i>n</i> = 9	15%
	Patient or patient's relative	<i>n</i> = 7	11.7%
	Family member	<i>n</i> = 6	10%
	Others	<i>n</i> = 5	8.3%
	Unknown	<i>n</i> = 8	13.3%
	Total	<i>n</i> = 60	100%
<b>Area of the event</b>	Urban	<i>n</i> = 36	60%
	Rural	<i>n</i> = 24	40%
	Total	<i>n</i> = 60	100%
<b>Location of the event</b>	Hospital <sup>a</sup>	<i>n</i> = 21	35%
	Open area	<i>n</i> = 20	33.3%
	Home	<i>n</i> = 18	30%
	Unknown	<i>n</i> = 1	1.7%
	Total	<i>n</i> = 60	100%
<b>Used method in the event</b>	Firearm	<i>n</i> = 38	63.3%
	Stabbing	<i>n</i> = 17	28.3%
	Strangulation	<i>n</i> = 2	3.3%
	Others	<i>n</i> = 2	3.3%
	Unknown	<i>n</i> = 1	1.7%
<b>Other traits</b>	Dyadic deaths <sup>b</sup> (homicide and suicide)	<i>n</i> = 7	11.7%
	Multiple homicides <sup>c</sup>	<i>n</i> = 9	15%
	Perpetrator with psychotic disorder	<i>n</i> = 6	10%

<sup>a</sup> Including two paramedics killed while on duty with the ambulance

<sup>b</sup> Deaths which the perpetrator committed suicide after the homicide

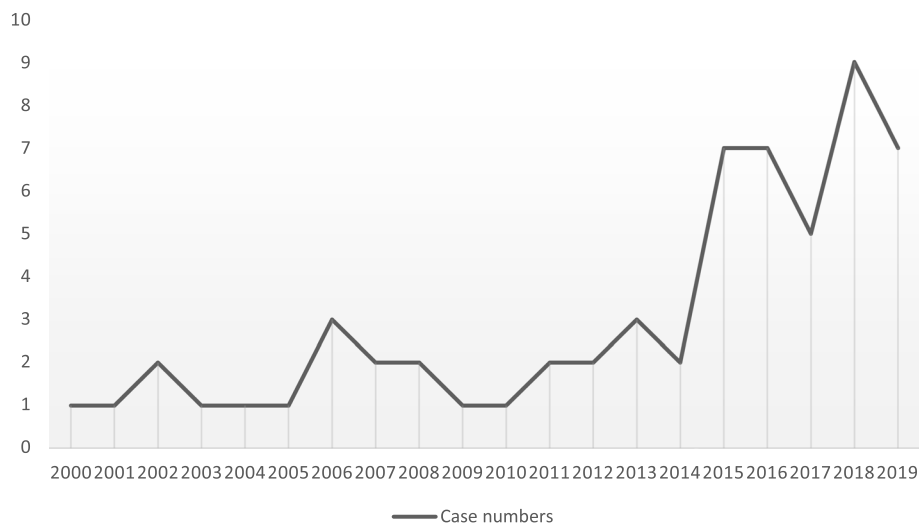
<sup>c</sup> Homicides in which at least two victims have been affected

the scapegoat of the system is always the healthcare professional who is consequently exposed to violence (Buyukbayram and Okcay 2013).

The results of our study showed that a significant proportion of fatal attacks against healthcare professionals were committed with firearms except for a single case of a person with psychiatric disorders. At this point, it is necessary to question how it is easy for people with psychiatric disorders to access firearms. One of the main important reasons for the increase in murders of healthcare professionals is the increase in individual armament. There is a positive relationship between the increase in the use of firearms and the increase in homicides committed with firearms. According to a study conducted in the United States of America, the country with the highest individual armament in the world, compared with other high-income countries, the USA has a youth firearm-related homicide rate that is 49 times higher

than the aggregate rate of 22 countries (Grinshteyn and Hemenway 2016; Richardson and Hemenway 2011). Although there is no reliable data on individual armament in Turkey, according to the 2019 data of the Turkish Forensic Medicine Institute; in 2012, injuries due to firearms were determined as 5485, and in 2019 it was 10488. This data can be considered as supporting the information that access and use of firearms are easier and can be associated with the increase in homicides of healthcare professionals in the last 5 years (Türkiye Cumhuriyeti Adalet Bakanlığı Adli Sicil ve İstatistik Genel Müdürlüğü 2019).

One of the most important pieces of data showing the increase in violence against healthcare professionals in Turkey is the significant increase in the number of Turkish healthcare professionals working abroad, especially in the last 5 years. While there are many reasons for this situation, the increase in the cases of violence in



**Fig. 1** Healthcare professionals murders between 2000 and 2019 in Turkey. This situation follows a relatively stable (ranging from 1 to 3 cases/year) course between 2000 and 2014. The dramatic increase in healthcare worker murders after 2015 draws attention

the healthcare system progressively, insufficient measures against violence, and difficulties in working conditions (excessive number of shifts, increase in the number of patients examined, worsening economics along with drastically reduced wages, etc.) can be considered as the main reasons (Metek et al. 2020). In Turkey, as a popular political issue Health Transformation Program, which aims to gain popularity among related authorities, come up with many systems-based problems such as increasing unreasonable expectations of patients and their relatives from health care professionals, flocking and utilizing emergency services of hospitals for kind of trivial health needs, holding healthcare professionals accountable for all administrative, payments, and drug-related issues and etc. Additionally, targeted qualitative and quantitative improvements could not be achieved, which has also increased violence against healthcare professionals (Buyukbayram and Okcay 2013).

The use of metal detectors at the entrances of health centers is of great importance in preventing violence against healthcare professionals. Seven potential offensive weapons were identified on the first day of X-ray which is one of the metal detectors, used in a hospital in Huangzhou, China in 2016 (Zhang et al. 2016). Although X-rays are not widely used, the fact that one major hospital reports a monthly rate of over 300 weapon seizures using metal detectors demonstrates their potential importance. Also, entering through metal detector scans in healthcare institutions will make many healthcare professionals feel safer (Meyer et al. 1997). Considering that the data in the study show that healthcare professionals are exposed to deadly

attacks mostly in their workplaces and firearms are the most common method of homicide, this suggestion by literature may seem reasonable; however, among hospital applicants most individuals would potentially refuse this since it will cause unnecessary X-ray exposure. Therefore, a body search with a metal detector seems to be more applicable to ensure to seize the weapons at the hospital entrance.

As another suggestion stated by literature, informing healthcare professionals/institutions about people prone to violence, and preventing them to enter health institutions with guns, is also mentioned. The fact that healthcare professionals have prior knowledge about patients with a tendency to violence can reduce the violence that develops against them, but this is not possible due to patient privacy laws (Hussong 2000). Similarly, it is not feasible in Turkey as it contradicts personal data protection law. Additionally, such implementation seems impossible in Turkey, where the health system is based on a performance system that is based on the more patients are treated, the more profits are made (Oguz 2020).

Domestic/intimate partner violence against women, which has become a more and more prominent problem that affects nearly two million women and puts more than 100,000 of them at risk of death in Turkey (Çavlin 2020; Kafadar 2018), also has a great role in presenting series. In female healthcare professional homicides included in this study, it is seen that the murderer is a former or current partner in most cases. This outcome shows that domestic/intimate partner violence against women is still a problem, far from having a solution, in Turkey.

## Limitations

Although, document analysis takes place among research methods for certain studies, the main limitation of this study is utilizing the information published in the media as a data source. Since death statistics are not archived in terms of professions in our country, the news in the media, which unfortunately is the only source where the data can be obtained, was used. Consequently, this caused a weak point in our data due to the lack of certain details in news reports for some cases. Since our study is on media-based document analysis and lacks information to be compared with the literature, it could not be evaluated as research with strong recommendations. Since data regarding presented cases was not from a proper archive, contrary to usual retrospective studies, derived conclusions were relatively weak. Therefore, possible solutions are derived from related literature instead of study-based deductions.

## Conclusions

It is observed that the homicides of healthcare professionals have increased significantly in the last 5 years. The fact that firearms are the most used method in these murders and that in certain cases, perpetrators can acquire firearms despite their known psychiatric illnesses show the strong need for implementing nationwide policies against individual armament and enforcing gun licensing rules. Considering the high numbers of homicides in health facilities, preventing the entry of armed people into health institutions should be considered as a measure. Additionally, healthcare professionals should not be targeted as the main cause of qualitative and quantitative weaknesses of the healthcare system. Furthermore, regulations prohibiting politicians, authorities, and media organs from targeting healthcare professionals as the scapegoat for system-related failures will help in tackling this issue.

## Abbreviation

TURKSTAT: Turkish Statistical Institute.

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## Authors' contributions

Halit Canberk Aydoğan and Ramazan Akçan conceived of this study. All the authors analyzed the data and discussed the results. Mahmut Şerif Yıldırım drafted the manuscript with the help of Halit Canberk Aydoğan and Muhammet Soyuyğit. The author(s) read and approved the final manuscript.

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### Consent for publication

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### Competing interests

The authors declare that they have no competing interests.

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