

Attacks on Health Care Worldwide: 5-year Review

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Abstract

Aim: The aim of our study is to explore the attacks on healthcare services and bring attention to this problem and raise awareness of the need for new national and international initiatives in this area.

Materials and Methods: The databases Surveillance System for Attacks on Health Care and Attacked and Threatened: Health Care at Risk were scanned between January 1, 2018 and November 11, 2020 to gather the research data (5 years).

Results: When the attacks are evaluated by country or region, it has been revealed that the Occupied Palestinian territory reported the most incidences with 1,140 (28.64%) attacks, followed by Ukraine with 666 (16.73%) attacks on healthcare facilities. As a result of the attacks, the Occupied Palestinian Territory experienced the most injuries with 695 people (53.1%), Afghanistan had the most deaths with 63 people (18.9%), and the most healthcare facility damage occurred with 581 (33.8%) organizations in Ukraine.

Conclusion: Despite the worldwide standards and national regulations of the Geneva Convention; attacks on healthcare personnel continue unabated, particularly in war and conflict zones. Reports from numerous nations and locations worldwide confirm this.

Keywords: Disaster medicine, emergencies, conflict, attack on healthcare

Introduction

The World Health Organization defines violence as “the intentional use of physical force or power, threatened or actual, against oneself, another person, or a group or community that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation” (1,2). Violence can be collective like war or systematic like terrorism, whereas other forms of violence include acts of violence against women and even acts of self-harm. Nevertheless, social violence is also influenced by acts of violence committed by individuals (3).

Violence is one of the most significant issues of our time. It is difficult to consider attacks on health services, buildings, vehicles, and equipment as violent acts. This circumstance can only be understood as a state of madness or part of a conflicting war strategy in places of chaos and disarray. At some point in their employment, 8% to 38% of healthcare professionals worldwide are subjected to physical violence. The prevalence of verbal and psychological abuse and threats to significantly higher than

that of physical violence. Research reveals that regardless of a country's level of development, violence against healthcare staff is a pervasive problem. In recent years, it has been reported that global health-related violence has increased. However, it is difficult to determine the true prevalence of incidents due to difficulties in accessing data, a lack of systematic studies, and a lack of reporting (4-6).

The persistence of attacks on healthcare services, even when healthcare personnel perform under extremely difficult conditions and jeopardize their own health, just like during the Coronavirus disease-2019 (COVID-19) pandemic, demonstrates the need for extensive public work and the implementation of appropriate measures. The global scope of the problem is revealed by the World Medical Association's report on the rise in violence in healthcare and its declaration as an international emergency (7).

We wanted to draw attention to this issue by analyzing the attacks on healthcare services in the last 5 years. We wanted to raise awareness that attacks on healthcare services are not declining despite the existence of several international regulations and



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restrictions and that additional efforts should be made on a global basis.

Materials and Methods

The research is a cross-sectional retrospective study. The databases Surveillance System for Attacks on Health Care (8) and Attacked and Threatened: Health Care at Risk (9) were scanned between January 1, 2018 and November 11, 2020 to gather the research data (5 years). Ethics committee approval was not obtained as data from open-access sources and a database that can be accessed publicly were used.

Statistical Analysis

Frequency data are presented as numbers and percentages in descriptive analyzes while continuous numerical data are given using the arithmetic mean and standard deviation. The chi-square (χ^2) test was used to compare categorical data.

The statistical significance level for all tests was set as $p < 0.05$.

Results

Over the course of five years, 3,980 attacks on healthcare services were reported. 1,095 people were killed and 2,697 were injured in these attacks. These reports were made from 18 countries or territories. One thousand seven hundred twenty-one healthcare facilities were damaged, 2,153 healthcare personnel were injured, and 485 patients were harmed in these attacks. In the

attacks, 100 people were injured at most in a single occurrence and 87 people were killed at most.

Considering the number of attacks by year, the highest number of attacks was reported in 2019 with 1,032 (25.9%). Eight hundred-two (20.2%) attacks on healthcare services were reported in 2018, 344 (8.6%) in 2020, 834 (21%) in 2021, and 968 (24.3%) in 2022 (Table 1).

Reviewing the Attacked and Threatened: Health Care at Risk system reveals that 6,109 reports have been made globally for all reasons related to healthcare services. Examining the number of incident-specific notifications reveals that 6,872 (86.40%) assaults for which the cause can be established were due to conflict, 149 (1.87%) due to COVID-19, 168 (2.11%) due to Ebola, 727 (9.14%) due to political causes, and 38 (%) due to vaccination (Table 2).

Evaluating the attacks by country or region (Table 3), it was determined that the Occupied Palestinian Territory had the highest number of occurrences with 1,140 (28.64%) attacks, followed by Ukraine with 666 (16.73%) attacks. The Occupied Palestinian Territory has the highest number of attack-related injuries with 695 people (53.1%) and the highest number of attack-related deaths with 63 people (18.9). Most healthcare facility damage has occurred in Ukraine, with 581 (33.8%) organizations sustaining damage.

The reported attacks affected 180 (4.5%) tertiary healthcare institutions, 529 (13.3%) secondary healthcare institutions, and

Table 1. Number of attacks and results by year

Years	Attacks	Injuries	Fatal Injuries	Affected patients	Affected health facilities	Affected health personnel
2018	802 (20.15%)	899 (33.33%)	158 (14.43%)	77 (15.88%)	212 (12.32%)	533 (24.76%)
2019	1032 (25.93%)	634 (23.51%)	201 (18.36%)	68 (14.02%)	329 (19.12%)	687 (31.91%)
2020	344 (8.64%)	322 (11.94%)	243 (22.19%)	52 (10.72%)	179 (10.40%)	175 (8.13%)
2021	834 (20.95%)	424 (15.72%)	279 (25.48%)	176 (36.29%)	338 (19.64%)	465 (21.60%)
2022	968 (24.32%)	418 (15.50%)	214 (19.54%)	112 (23.09%)	663 (38.52%)	293 (13.61%)
Total	3980 (100%)	2697 (100%)	1095 (100%)	485 (100%)	1721 (100%)	2153 (100%)

Source: Surveillance System for Attacks on Health Care

Table 2. Number of attacks on health services by incident category

	Conflict	COVID-19	Ebola	Political	Vaccination
Health facilities damaged	3676 (53.49%)	42 (28.19%)	53 (31.55%)	20 (2.75%)	1 (2.63%)
Health workers kidnapped	630 (9.17%)	14 (9.40%)	21 (12.50%)	5 (0.69%)	14 (36.84%)
Health workers injured	1795 (26.12%)	81 (54.36%)	67 (39.88%)	681 (93.67%)	11 (28.95%)
Health workers killed	771 (11.22%)	12 (8.05%)	27 (16.07%)	21 (2.89%)	12 (31.5%8)
Total	6872 (100%)	149 (100%)	168 (100%)	727 (100%)	38 (100%)


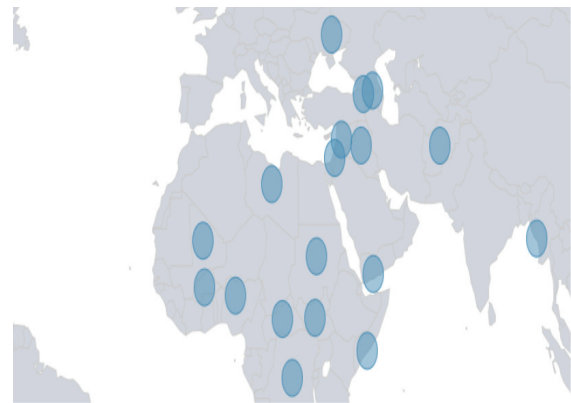
Source: Attacked and Threatened: Health Care at Risk, COVID-19: Coronavirus disease-2019

803 (20.2%) primary healthcare institutions. The reported attacks caused the most damage to healthcare facilities in Ukraine. In terms of healthcare facility involvement, a statistically significant difference was found between attacks in which heavy weapons were reported and other attacks ($p<0.001$, $\chi^2=551.823$).

Individual weapons were used in 1,497 (37.6%) of the attacks; heavy weapons were used in 1,289 (32.4%); sexual assault was committed in 11 (0.3%); and 852 (21.4%) psychological violence has been reported (Table 4).

There were 1,309 injuries and 339 fatalities among the reported incidents (Table 5). It was determined that 63% of the injuries occurred in attacks where individual weapons were used, 23.3% in attacks in which heavy weapons were used, and 14.9% in attacks in which individual and heavy weapons were involved together. In terms of injuries, there was a significant difference between the attacks in which individual weapons were used and those in which heavy weapons were used ($p<0.01$, $\chi^2=141,652$).

Table 3. Attacks by country or region

 		
Country/Territory	n	%
Afghanistan	333	8.37
Armenia	1	0.03
Burkina Faso	39	0.98
Central African Republic	183	4.60
Democratic Republic of the Congo	487	12.24
Iraq	36	0.90
Libya	145	3.64
Mali	50	1.26
Myanmar	335	8.42
Nagorno-Karabakh	1	0.03
Nigeria	81	2.04
Occupied Palestinian Territory	1140	28.64
Somalia	4	0.10
South Sudan	31	0.78
Sudan	60	1.51
Syrian Arab Republic	306	7.69
Ukraine	666	16.73
Yemen	82	2.06
Total	3,980	100
Source: Surveillance System for Attacks on Health Care		

Discussion

This study demonstrates that despite the worldwide standards and national regulations of the Geneva Convention, violence related to the provision of healthcare services persists and attacks against healthcare professionals have not decreased (10,11). Many patients injured people, and civilians have had difficulty accessing health care as a result of violence and attacks on healthcare facilities. It is extremely difficult to determine the extent to which these attacks affect healthcare workers, particularly in conflict zones. For this, well-structured and effective notification systems are needed. As a result, it is believed that many healthcare worker deaths are misclassified as civilian deaths (12).

Although we want to draw attention to violence and attacks on healthcare in our study, it is seen that the incidents intensify in war and conflict zones. The damage caused by attacks on healthcare services or healthcare workers is not limited to the attack itself but has a knock-on effect that can deprive patients of treatment and lead to a wave of migration (13). The murder of six ICRC health workers in December 17, 1996 and the suspension of the organization's operations in Chechnya are two such examples. According to the study, this single event deprived thousands of war-wounded patients of surgical care (14).

Table 4. Types of attacks on health care		
Types of attack	n	%
Individual weapons	1497	24.33
Heavy weapons	1289	20.95
Psychological violence	852	13.85
Obstruction	679	11.04
Removal assets	435	7.07
Removal personal	384	6.24
Assault	379	6.16
Violent search	325	5.28
Militarization	146	2.37
Setting fire	123	2.00
Chemical agents	17	0.28
Criminalization of health care	12	0.20
Sexual assault	11	0.18
Unknown	8	0.13
Source: Surveillance System for Attacks on Health Care		

When the situations involving attacks and violence are examined, it is seen that there are different numbers of notifications in the same time period in different tracking and registration systems in the regions. It is thought that the recording of tracking systems with a common method and the sharing of data can eliminate this problem (8,9).

The magnitude of the additional costs that arise as a result of attacks on healthcare facilities and personnel may not be accurately determined at the first stage. Secondary losses are significantly greater than primary losses. Disruptions in emergency healthcare services and primary healthcare services as a result of healthcare access issues may result in even higher costs than the picture revealed by the war (15,16). Furthermore, this situation is closely related to civilian protection (12).

In our study, we discovered that attacks involving only individual weapons resulted in more deaths and injuries than attacks involving heavy weapons. The destructive potential of weapons also rises alongside technological progress. Although heavy weapons have a greater destructive power, individual weapons also have a high destructive power (17,18). The higher number of casualties in attacks involving individual weapons is often attributed to the increased likelihood of target shooting. For this reason, keeping in mind that more deaths and injuries occur in individual or light weapon attacks on health services, appropriate measures should be taken in areas of conflict and war.

Study Limitations

Since our study is an open-access database study, it was not possible to obtain all of the requested data. An evaluation was made using the data presented.

Conclusion

Over the past five years, it has been observed that attacks on healthcare services have not diminished. On the other hand, attacks are concentrated in areas where confusion and conflict exist. It is one of the most important findings of our study that the highest number of attacks and related injuries and deaths occurred in the Palestinian territories, the highest number of healthcare facility damages occurred during the Ukrainian War, and individual weapons were most commonly used to inflict injuries during attacks on health services. The fact that attacks on healthcare services in these regions have not decreased despite

Table 5. Comparison of the types of weapons used in attacks and their effects						
Weapon type	Injuries		Fatal injuries		Affected health care worker	
Individual weapons	722 (63.2%)	p<0.001 x²=141,652	170 (58.2%)	p<0.05 x²=8,815	923 (69.5%)	p<0.001 x²=387,263
Heavy weapons	421 (36.8%)		122 (41.8%)		406 (30.5%)	
Source: Surveillance System for Attacks on Health Care						

numerous international regulations suggests that this situation has been adopted as a strategy. Disrupting combatants' access to healthcare services and demoralizing them may be one of these objectives. However, another consequence is that it is difficult for civilians to access healthcare services, and they are forced to leave their areas of residence. Disruptions in vaccination studies, noncompliance with the rules governing women's and reproductive health, hygiene, sanitation, and disruption of fundamental public health services in these regions cause secondary problems such as the spread of epidemics. Even though the number of attacks for other motives is relatively low, they should not be underestimated. For this reason, the international community should act collectively against attacks on healthcare services, and serious sanctions should be applied.

Ethics

Ethics Committee Approval: Ethics committee approval was not obtained as data from open-access sources and a database that can be accessed publicly were used.

Informed Consent: Retrospective study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: F.C.T., Concept: F.C.T., Design: F.C.T., F.S.Ö., Data Collection or Processing: F.C.T., Analysis or Interpretation: F.C.T., F.S.Ö., Literature Search: F.C.T., Writing: F.C.T., F.S.Ö.

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