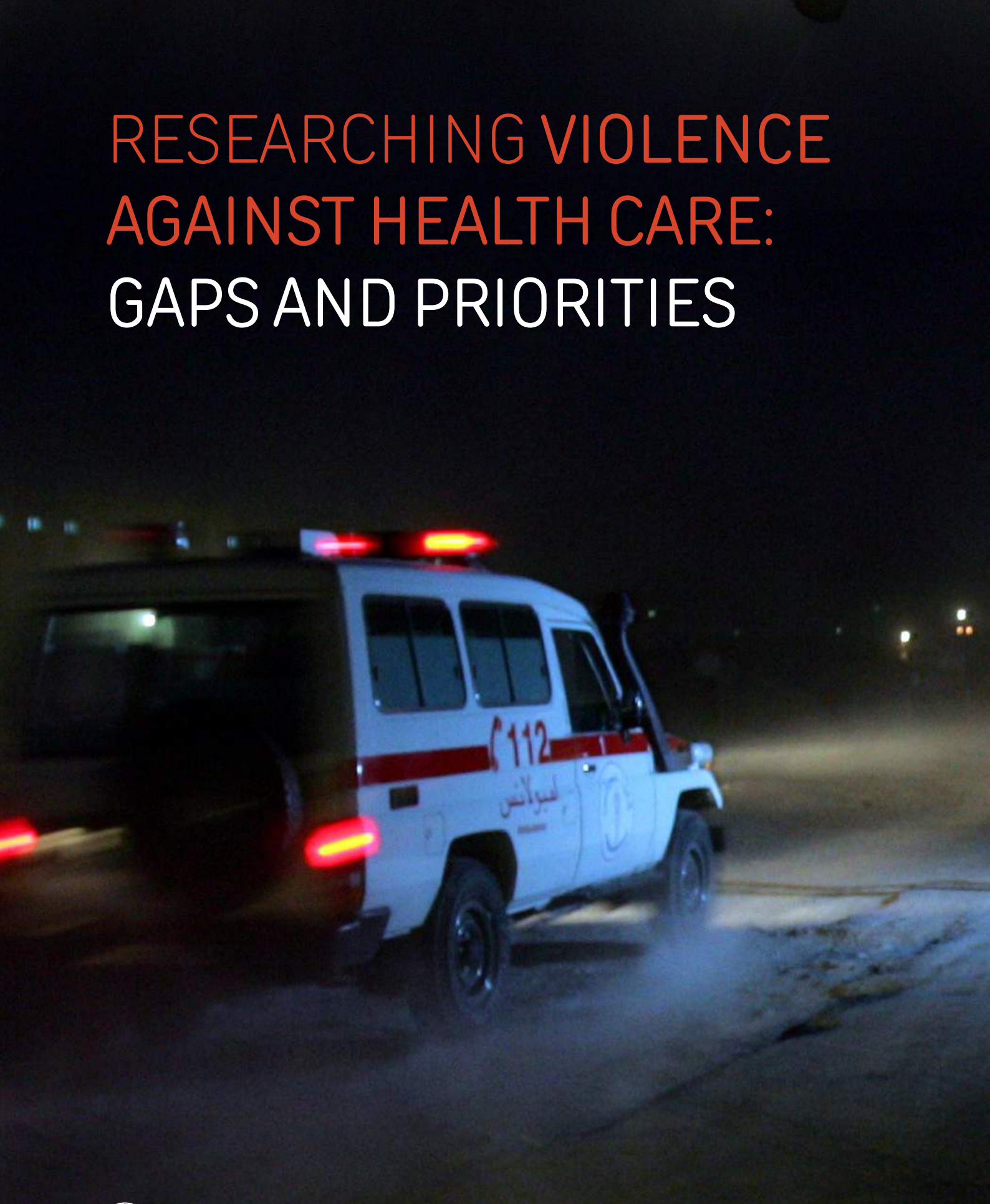
RESEARCHING VIOLENCE AGAINST HEALTH CARE: GAPS AND PRIORITIES



ICRC

HEALTH CARE IN DANGER IT'S A MATTER OF LIFE & DEATH

elrha

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ACKNOWLEDGEMENTS

ABOUT THIS REPORT:

This report is the result of research undertaken by RAND Europe, commissioned by the International Committee of the Red Cross (ICRC) and Elrha to provide a Situational Analysis and Review of the Evidence Base on violence against healthcare, as part of the ICRC's Health Care in Danger Initiative.

The report investigates the current status of research on violence against healthcare, identifies research gaps and conducts an initial prioritisation of future research. This is achieved through a combination of structured literature review, key informant interviews, and a series of internal workshops held at RAND Europe.

ABOUT ICRC AND HCID

The ICRC

The International Committee of the Red Cross (ICRC) helps people around the world affected by armed conflict and other violence, doing everything it can to protect their lives and dignity and to relieve their suffering, often with its Red Cross and Red Crescent partners. The ICRC also seeks to prevent hardship by promoting and strengthening humanitarian law and championing universal humanitarian principles. As the reference on international humanitarian law, it helps develop this body of law and work for its implementation.

People know they can count on ICRC to carry out a range of life-saving activities in conflict zones, including: supplying food, safe drinking water, sanitation and shelter; providing health care; and helping to reduce the danger of landmines and unexploded ordnance. The ICRC also reunite family members separated by conflict, and visit people who are detained to ensure they are treated properly. The ICRC works closely with communities to understand and meet their needs, using our experience and expertise to respond quickly and effectively, without taking sides.

Health Care in Danger initiative

The ICRC's Health Care in Danger (HCiD) initiative seeks to create a world where weapon bearers, political authorities and populations in countries affected by conflict and other emergencies respect the inviolability of health care at all times. To realize our vision and reach our objectives, the ICRC will work together with its partners along three axes of engagement:

Operationalization

The HCiD initiative supports the identification and implementation of concrete, practical measures and operational responses at national and local levels to prevent violence and safeguard health care in armed conflict and other emergencies. This is done by focusing on countries where it matters the most in order to achieve maximum impact.

Evidence-Based Strategies

It will not be possible to devise the right strategies to protect health care from violence, or to promote the use of these strategies on the proper scale, without the necessary evidence base. This is why the ICRC's approach to generating evidence on violence against health care, and on the effectiveness of activities to prevent it, focuses on partnering with public-health institutes and other relevant research bodies embedded within the health systems of countries affected by conflict and other emergencies. Research conducted locally in this way will not only enable local prevention strategies to be based on a nuanced understanding of patterns of violence, but will, in time, also contribute to creating a global overview of trends.

Influencing And Coalition-Building

The ICRC will focus its mobilization efforts at the national and subnational levels, where selected delegations will create and foster "communities of concern" that bring together representatives of health-care providers affected by violence, health-care policymakers, and other stakeholders who can contribute to developing a solution to the violence. Local communities of concern will play a role in mobilizing a broader range of government and civil-society stakeholders, generating evidence, and jointly designing and implementing activities or responses aimed at providing more effective protection for health care.

www.icrc.org / www.healthcareindanger.org

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ABOUT ELRHA

Elrha is a global charity that finds solutions to complex humanitarian problems through research and innovation.

We are an established actor in the humanitarian community, working in partnership with humanitarian organisations, researchers, innovators, and the private sector to tackle some of the most difficult challenges facing people all over the world.

We have supported more than 200 world-class research studies and innovation projects, championing new ideas and different approaches to evidence what works in humanitarian response.

We equip humanitarian responders with this knowledge, so that people affected by crises get the right help when they need it most.

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ABOUT RAND EUROPE

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RAND Europe is a not-for-profit policy research organisation that helps to improve policy and decision making through research and analysis. RAND Europe's clients include European governments, institutions, non-governmental organisations and others requiring rigorous, independent, multidisciplinary analysis.

Thank you to ICRC and Elrha for the support provided and the valuable insights offered by interviewees and fellow colleagues at RAND Europe. The authors would like to extend particular thanks to the following individuals: Anne Harmer and Kate Hart (Elrha), Maciej Polkowski and Jessica Ramirez Mendoza (ICRC), and Tom Ling, Sue Guthrie, Alexandra Hall, Kate Morley, Natasha Elmore, Jenny Newbould, Jenny George, Sarah Ball and Sarah Grand Clement (RAND Europe).

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FOREWORD

Protecting healthcare from violence is imperative if we want communities across the globe to access the health services they are entitled to. Sadly, in conflict and other emergency settings where healthcare is most needed, attacks most frequently take place: ambulances are refused passage out of refugee camps resulting in patient deaths; surgeons are unable to operate when armed men refuse to leave operating theatres; and entire health care health structures are destroyed due to disregard for international norms by those in charge of military operations.. The objective of ICRC's Health Care in Danger initiative is specifically to protect healthcare from such inhumane violence.

Contrary to the spirit of humanitarianism, attacks against healthcare are a complex problem defying simple solutions. Preventing attacks often requires a disruption of established behaviour on the part of armed actors, health personnel and civilians alike. Solutions are usually context-specific and technical, requiring high-level policy change and health system reform.

Responding to this challenge, the ICRC partnered with Elrha to commission this situation analysis and evidence review. Our objective was to take stock of global knowledge on violence against healthcare and its impact, and to determine the availability, or otherwise, of preventive solutions. Both organisations are committed to advancing the knowledge of what works to protect health care from violence, through a deeper understanding of the complex factors at play and an assessment of the most promising solutions.

Research is a powerful tool to explore aspects of social reality and catalyse action to create positive change. At the ICRC, we believe that health care providers and researchers in countries affected by armed conflict and other humanitarian crises – many of whom have first-hand experience of violence themselves – play a critical role in filling evidence gaps and finding practical solutions to violence against health care. We also know that the approach and focus of response actors needs to be adapted if we are to collectively ensure that people get adequate care even in the worst of circumstances. Critical to this is that health centres must be respected by all parties across political fault lines. There is no grey area. Those taking care of the sick and the wounded should never be targeted.

This report Researching Violence Against Health Care: Gaps and Priorities describes current approaches that prevent violence against health care and, importantly, identifies the evidence gaps that need to be filled through rigorous research. We are sharing the report with the aim of facilitating learning across the global community, with the hope that resources can be generated to support meaningful research that will see an end to violence against health care.

Prof. Gilles Carbonnier,
Vice President, International Committee of the Red Cross

Table of contents

Figures

Tables

Boxes

Abbreviations

EMS	Emergency Medical Services
GDPR	General Data Protection Regulation
GP	General Practitioner
HCW	Healthcare Worker
ICRC	International Committee of the Red Cross
IHL	International Humanitarian Law
LOAC	Law of Armed Conflict
MSF	Médecins Sans Frontières (Doctors Without Borders)
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Co-operation and Development
REA	Rapid Evidence Assessment
RQ	Research Question
SSA	Surveillance System of Attacks on Healthcare
STREAM	Systematic Technology Reconnaissance, Evaluation and Adoption Method
USAID	United States Agency for International Development
WHO	World Health Organization

1. Introduction

1.1. Research context

Violence against healthcare has attracted considerable attention within the international humanitarian community and wider public discourse, in part as a result of violence and high-profile attacks on healthcare in conflict zones such as Syria,[1] Yemen,[2] Democratic Republic of Congo[3] and Afghanistan.[4] Whilst this subset of violence against healthcare is of grave concern for public health in these states, it is important to recognise that violence against healthcare not only constitutes a significant problem in conflict-affected areas, but also represents a much wider issue that also impedes the effective delivery of healthcare in non-conflict affected areas, as well as areas of generalised/collective violence that are considered neither conflict nor non-conflict environments. Moreover, it is important to recognise that violence against healthcare is not a new phenomenon nor is it narrowly defined, but rather constitutes a wide range of activities and mechanisms that hinder ongoing access to and delivery of healthcare.[5]

In spite of increased media attention and a global normative commitment to the protection of healthcare services, the quality of the existing evidence base on violence against healthcare appears mixed, and there is a clear absence of research that seeks to outline and investigate the degree to which existing literature enables a comprehensive understanding of the true nature and impact of violence against healthcare, as well as an analysis of the range of effective interventions that may be used to protect healthcare from violence.

1.2. Aim of the study

This aim of this study is to assess the current evidence base on violence against healthcare, identify research gaps, and prioritise areas for future research.

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[1] This includes, for example, an attack on a UN/Syrian Arab Red Crescent (SARC) aid convoy, SARC warehouse and health clinic in Urum al-Kubra (Big Orem). See, for example, UN News (2016).

[2] See, for example, Magdy (2019).

[3] See, for example, UN News (2019).

[4] See, for example, WHO (2017).

[5] See, for example, ICRC (2011a).

In assessing the current evidence base, the study aims to identify areas with comparatively high and low quantities of current research. This includes research on the nature and impact of violence against healthcare, and on interventions that safeguard healthcare from violence, such as legal frameworks, monitoring mechanisms, organisational policies and individual protection measures. The review of the evidence base also aims, where possible, to provide assessments of the quality of existing research on violence against healthcare. This includes the quality of research design, data collection and analysis, and the extent to which existing research supports the development and implementation of effective, evidence-based interventions.

The findings from this review feed into the identification of research gaps and the prioritisation of future research. These latter stages of the study aim to identify areas of insufficient and/or contradictory evidence, and prioritise these areas according to the expected impact and perceived feasibility of implementation. It is hoped that our findings will enable future research that adds value to the existing evidence base, and which supports policymakers and practitioners in delivering healthcare services that are free from violence.

The study aims to take a global approach that identifies and reviews a wide range of literature, including sources in English and non-English languages, sources from high- and low-income countries, and research that focuses on conflict and non-conflict environments. The study also applies a broad and inclusive definition of violence against healthcare that is intended to capture both the breadth and depth of available literature.

1.3. Structure of the report

This report summarises the findings of research carried out by RAND Europe into the current evidence base on violence against healthcare, including the identification of research gaps and the prioritisation of future research. The report is structured into the following chapters:

- Chapter 1: Introduction includes a summary of the research context, our research aims, a definition of violence against healthcare, a list of research questions, and a summary of research approach.
- Chapter 2: Review of existing evidence investigates the current evidence base on violence against healthcare, and includes an overview of the literature, a review of evidence on the nature and impact of violence, a review of evidence on interventions countering violence against healthcare, and an overarching assessment of the literature based on findings from the literature review, interviews and internal workshops.
- Chapter 3: Identification of research gaps outlines the gaps in the existing evidence base that were identified through this research project. This includes gaps relating to the nature and impact of violence, interventions countering violence against healthcare, specific contexts on violence, data collection, and specific research methods.
- Chapter 4: Prioritisation of research provides an initial assessment of these research gaps against predefined prioritisation criteria, including impact, feasibility of implementation and relevance.

- Chapter 5: Conclusions and recommendations provides a brief summary of the evidence presented, and suggests possible next steps for future research based on our findings.

The report contains a number of annexes that complement and add further detail to the research presented. These annexes comprise:

- Annex A: Full ranking of research gaps against prioritisation criteria provides full datasets on the ranking of research gaps against the predefined criteria outlined in Chapter 4.
- Annex B: Full STREAM dataset provides the full aggregated dataset from the internal prioritisation workshop held at RAND Europe.
- Annex C: Suggested criteria for assessing research proposals provides a more detailed framework that may be used to prioritise future research proposals on violence against healthcare.
- Annex D: List of interviewees provides the list of individuals who were interviewed as part of this project. This list only includes the names of individuals who provided written consent for their names to be included.
- Annex E: Backgrounds of STREAM participants provides a brief overview of the areas of research and experience of participants at the STREAM workshop.
- Annex F: Additional information on literature review method provides precise search strings and detailed inclusion/exclusion criteria.

1.4. Defining violence against healthcare

It is important to define the term 'violence against healthcare' in order to understand and constrain the boundaries of this review. There appears to be no universally accepted definition,[6] and so the research team began with the following broad conceptualisation based on existing definitions of violence:

> *Violence, in all its forms, that impedes, prevents or otherwise impacts the effective delivery and/or receipt of healthcare*

This definition demands further refinement, which can be accomplished by distilling two key concepts: 1) violence, and 2) healthcare. In this study, the term *healthcare* is used to refer to personnel, facilities and logistics involved in the delivery and utilisation of activities that aim to improve a person's physical or mental health. This definition is based on the conceptualisation provided by the Health Care in Danger initiative,[7] and includes:

- Healthcare personnel, including doctors, nurses, forensic specialists, midwives, paramedical staff (including first responders), support staff assigned to medical functions, administrative staff of healthcare facilities (including facilities that store medical supplies), medical students in their clinical placement, home care workers, caregivers, and staff involved in the transportation of medical supplies.
- The wounded and sick, and more specifically, those receiving or seeking to receive medical assistance by a trained member of the healthcare services. This includes all persons, without discrimination, who are receiving or seeking to receive such assistance by a trained healthcare professional.
- Healthcare facilities, including hospitals, laboratories, clinics, first aid posts, medical residency placements, blood transfusion centres, and the medical and pharmaceutical stores of these facilities.
- Medical transport, including ambulances, medical ships and aircraft, whether civilian or military, and vehicles transporting medical supplies or equipment.
- Health information technology, including wearable devices and electronic health records, which are liable to cyber attack or medical identity theft.[8]

[6] A number of context-specific definitions exist, including the WHO's definition of violence against health workers, Stop Healthcare Violence's definition of workplace violence in healthcare, and Health Care in Danger's conceptualisation of violence against healthcare. See: WHO (n.d.a.); Stop Healthcare Violence (n.d.); HCiD (n.d.).

[7] HCiD (n.d.).

[8] Health information technology is not included in the definition provided by the HCiD initiative, and was added by RAND Europe to capture the threat of cyber attacks in healthcare. See, for example, KPMG (2015).

In defining *violence*, the research team have used the following definition developed by the World Health Organization (WHO):[9]

> *[Violence is] the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation.*

There are a number of important concepts in this definition, including the threat or use of physical force, the threat or use of power, actions that result in or are likely to result in harm (both physical and non-physical), and the presence of intentionality:

- The threat or use of physical force refers to a range of actions that may be carried out by humans, including killing, injuring, damage, destruction, and obstruction of the passage of persons or vehicles, such as ambulances or vehicles carrying medical supplies. It also refers to forms of sexual violence, including rape and sexual assault, and instances where physical force is delivered via an external mechanism or tool, such as through the use of ammunition or explosives (including those delivered by aircraft or remotely operated drones), as well as attacks carried out in the cyber domain.
- The threat or use of power broadens the definition of violence beyond physical acts to verbal violence, including intimidation, disruption, bullying and harassment.
- Actions that result in or are likely to result in harm include both physical and psychological actions against people, and physical damage of infrastructure such as buildings and vehicles.
- Maldevelopment and deprivation broadens the definition to include types of violence that originate in inequitable power relationships, thereby speaking to structural instances of violence against healthcare. At an individual level, structural violence may include discriminated access to healthcare, forced choices, and unequal access to healthcare and information on personal health. At a system level, structural violence may include arbitrary denials or limitations to healthcare access for entire areas of a country.
- Intentionality refers to the deliberate or purposeful use of force or power to cause harm. Within the context of violence against healthcare, and especially in the context of armed conflict where international humanitarian law (IHL; also known as the law of armed conflict or LOAC) applies, this principle demands a nuanced understanding. This is because IHL not only prohibits intentional acts of violence, but also unintentional harm where feasible measures have not been taken to protect the wounded and sick, as well as healthcare providers, facilities and other areas of healthcare as defined above.[10]

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[9] WHO (2002).

[10] For a succinct summary of IHL, and international human rights law, as applicable in armed conflict and other emergencies, see ICRC (2011b). See also UN Security Council Resolution 2286, which inter alia strongly condemned acts of violence against the wounded and sick, medical personnel and humanitarian personnel exclusively engaged in medical duties, their means of transport and equipment; demanded that parties to armed conflicts comply with applicable international law obligations; and urged States and all parties to armed conflict to develop effective measures to prevent and address acts of violence against medical care providers in armed conflict.

In defining violence against healthcare in the manner outlined above, the research team aimed to develop and apply a broad conceptualisation of violence and healthcare that is inclusionary as opposed to exclusionary. This approach was considered appropriate for an overall assessment of the evidence base on violence against healthcare, although the breadth of definition did create additional challenges during the implementation of the research process, as outlined in Section 1.6.1 (Step 3).

1.5. Research questions

In order to provide structure to this review, RAND Europe developed the following research questions (RQ) that divide the overall research aim into five distinct areas. These research questions are referred to throughout this report, and are formulated as follows:

- RQ1: What is the status of current research on the nature of violence against healthcare?
- RQ2: What is the status of current research on the impact of violence against healthcare?
- RQ3: What is the status of current research on different interventions that aim to reduce, prevent and/or mitigate violence against healthcare?
- RQ4: What are the gaps in existing research on violence against healthcare?
- RQ5: What are the priorities for future research on violence against healthcare?

Note: The term 'status' is applied broadly to refer to quantity, quality, breadth and depth of existing research.

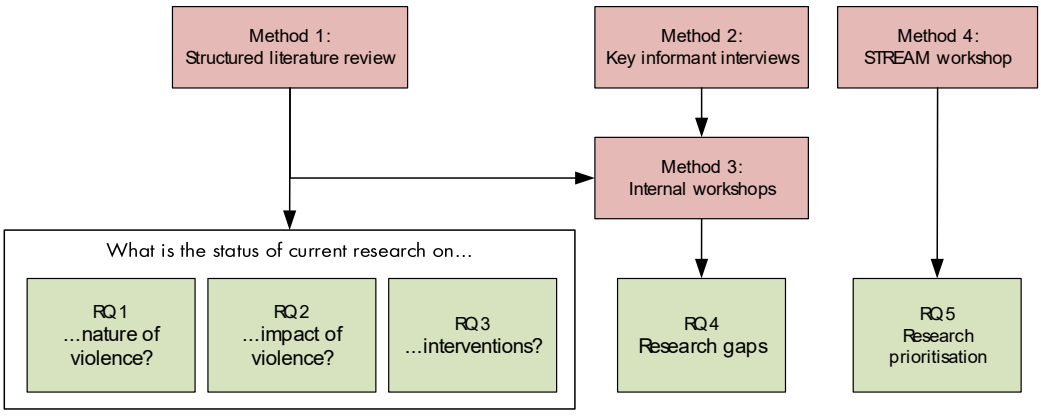
1.6. Research approach

Four research methods were used to review the existing evidence base and address the five research questions outlined above:

- Method 1: Structured literature review
- Method 2: Semi-structured key informant interviews
- Method 3: Internal workshops
- Method 4: STREAM workshop.

These methods were used to inform one or more research questions and to inform the study as a whole. The structured literature review, for example, was used primarily to explore the status of current research on violence against healthcare (RQ1–RQ3), and to inform the identification of research gaps (RQ4) alongside the key informant interviews. The STREAM workshop was used primarily to support the prioritisation of future research (RQ5). A mapping of research method to research question is illustrated in Figure 1 below, and each method is described in more detail in Sections 1.6.1 to 1.6.4 below.

Figure 1. Mapping research method to research question



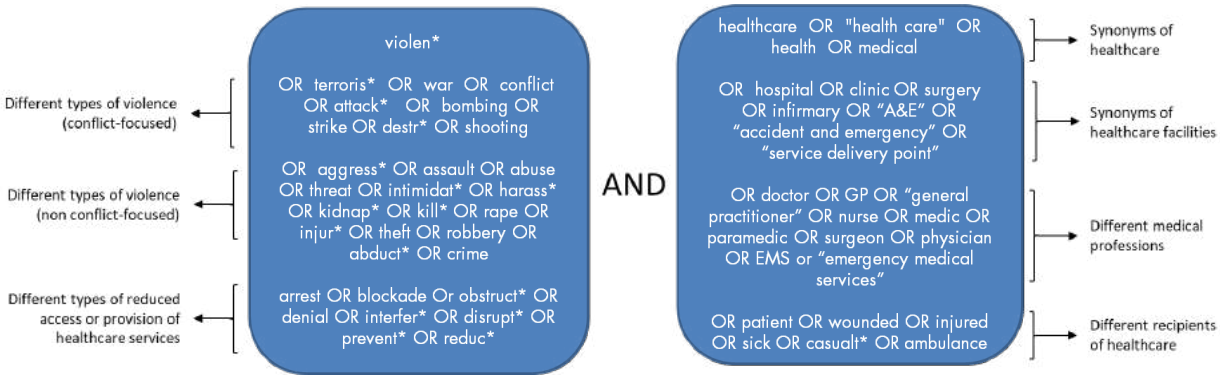
1.6.1. Method 1: Structured literature review

A structured literature review was carried out in order to understand the status of the existing evidence base on violence against healthcare, referring in particular to RQ1, RQ2 and RQ3. The research team initially planned to conduct a Rapid Evidence Assessment (REA), which is a particular type of structured literature review that follows a similar approach to a systematic literature review, but allows for greater flexibility in research method such that the scope of the review may be adapted to initial research findings. In carrying out the REA, however, it soon became apparent that the total number of relevant sources (~1,500) identified through the literature search was significantly greater than the amount that could feasibly be included in a typical REA. The REA approach was therefore adapted, in consultation with the ICRC and Elrha, in order to accommodate the full list of sources, and included the following four steps:

Step 1: Initial literature search

The initial literature search was carried out using a combination of protocol-driven database searches, supplemented by additional searches of Google and Google Scholar and snowballing searches. The protocol-driven searches were carried out in English only, whereas the searches of Google, Google Scholar and snowballing searchers were carried out in English, French, Spanish, Chinese and Arabic.[11] The initial search string used in the protocol-driven search is outlined in Figure 2 below.

Figure 2. Initial search string used in database searches



This search string was applied to three separate literature databases (PubMed, Scopus and CINAHL), and returned 2,160,192 hits when searching by title, abstract and keywords, and 617,603 hits when searching by title and keywords only. In order to reduce the total number of hits, the research team worked directly with RAND Corporation's librarian services to adapt the search string in Figure 2, and thus reduce the number of false positives whilst minimising the exclusion of relevant sources. The librarian services team identified a number of key problematic clusters of literature in the initial search results, including those relating to the medical treatment of victims of violence, aggressive forms of medical treatment (e.g. aggressive cancer treatment), preventative medicine, methods for reducing readmissions, obstructive health conditions (e.g. obstructive sleep apnoea), and denial of insurance coverage. The final search strings used in the protocol-driven search are outlined in Annex F, and these produced a total of 20,833 hits.[12]

Additional searches of Google and Google Scholar were also carried out in English, French, Spanish, Chinese and Arabic in order to supplement the protocol-driven search. The searches of Google and Google Scholar included both academic and grey literature sources, but were carried out with the

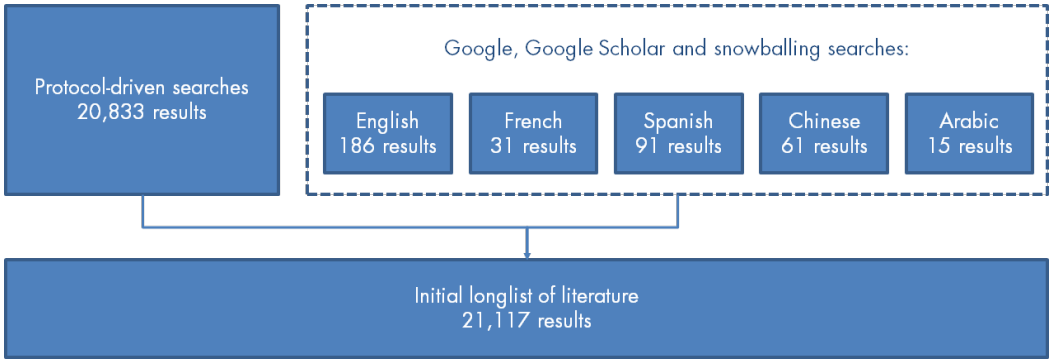
[11] Protocol-driven searches were carried out in English only for a number of reasons, including: availability of English-speaking librarians with experience of searching English language databases; understanding that non-English language academic sources are often available and indexed in English language databases with English keywords and/or abstracts; and requirements to constrain the scope of the study to available resources.

[12] This figure is similar in magnitude, albeit several times larger, to other protocol-driven studies in this area. Nikathil et al. (2017), for example, identify 8,720 studies in their initial search, and Brunetti & Bambi (2013) identify 3,177 studies. These two studies, however, are narrower in scope than the search conducted as part of this review.

particular aim of identifying the latter. The protocol-driven search described above was applied to academic databases only, and hence was not expected to return many grey literature sources.

The precise search strings used in Google and Google Scholar are outlined in Annex F, together with the number of pages reviewed for each search string. Articles that were used in snowballing searches are also identified. It is, however, important to recognise that the search results on Google and Google Scholar are personalised to each individual user at the specific time of use, and that the algorithms that underpin the search engines may change over time.[13] This reduces the reproducibility of the results. Figure 3 summarises the initial number of publications that were identified through each initial search.

Figure 3. Number and sources of publications in the initial longlist of literature



Step 2: Screening against inclusion/exclusion criteria

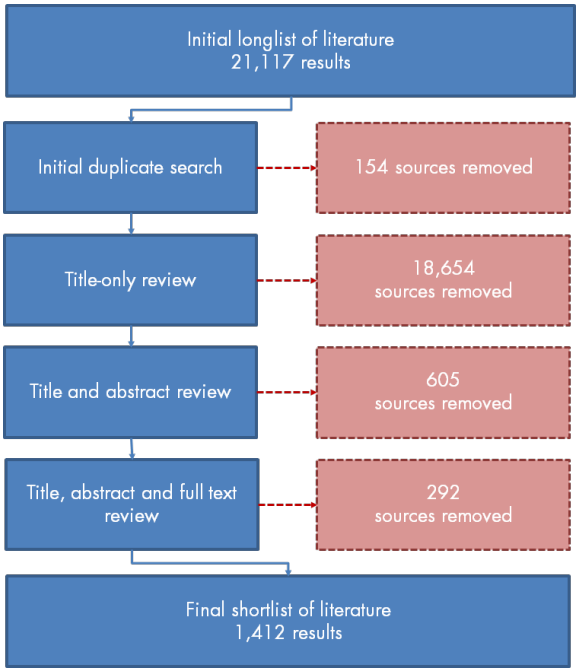
The second stage of the literature review screened the results of the initial search against predefined inclusion/exclusion criteria. These criteria were defined in advance, and included relevance to the research questions, type of literature, date of publication, language and geographic location. The full list of inclusion/exclusion criteria is provided in Annex F.

The screening process was broken down into four steps according to the level of reading required to determine the inclusion or exclusion of a source: 1) initial duplicate search (automated comparison of titles and abstracts); 2) titles only; 3) title and abstract; and 4) title, abstract and full text (borderline/ambiguous cases only, where review of title and abstract proved inconclusive).

The number of sources removed at each stage of the review process is summarised in Figure 4 below. In total, the screening process identified 1,412 relevant sources that passed the inclusion/exclusion criteria outlined in Annex F. These sources were taken forward for more detailed data extraction.

[13] Hannack et al. (2017).

Figure 4. Summary of sources removed through the four stages of review



Step 3: Data extraction

The number of relevant literature sources in the final shortlist was significantly higher than had been anticipated at the start of the literature review process. As a result, the method of the review was adapted such that all relevant literature sources could be processed during the data extraction stage within available resources. The data extraction was adapted into a more simple mapping (i.e. tick box) of all literature sources against predefined criteria (see Table 1), as opposed to the more detailed qualitative data extraction that is typically implemented in a rapid evidence assessment. The mapping criteria were developed and reviewed both internally at RAND Europe and in consultation with Elrha and ICRC. The criteria and data extraction template were designed to capture as much relevant information as possible whilst also ensuring that the data extraction itself could be completed in an efficient manner. Data extraction was carried out by a team of analysts at RAND Europe using both abstracts and full text. Subsequent analysis was then conducted at an aggregated level in order to consolidate and calibrate the scoring across the team. A summary of the data extraction criteria is provided in Table 1.

Step 4: Data analysis

The final stage in the structured literature review was an analysis of the data generated through the extraction process. This analysis was conducted using descriptive statistics, the results of which are presented in Chapter 2.

Caveats and limitations of the literature review

The literature review was designed and adapted in order to understand and analyse the existing evidence base on violence against healthcare within resource and time constraints. Nonetheless, there are a number of important caveats and limitations to the approach used, including:

- Applying the inclusion/exclusion criteria to borderline cases. Although many literature sources were categorised relatively easily according to the inclusion/exclusion criteria, some were more difficult. This includes, for example, extended editorial pieces and perspective articles in academic journals, some of which resembled short literature reviews as opposed to opinion pieces. Similarly for grey literature sources, the distinction between extended news reports and formal research was not always clear. In ambiguous cases, the research team included all sources that provided a valuable addition to the evidence base, based on the quality of the research and depth of analysis.
- Simplifying complex research papers into a quantitative data extraction template. The data extraction template was designed to disaggregate and capture relevant information across the evidence base whilst ensuring that the task itself could be completed by the research team within available resources. Whilst some publications were relatively easy to categorise, others were more complex and did not fit neatly into one category. Free text inputs in the data extraction template were added to minimise this difficulty during the initial extraction, but this did not fully remove the challenge. Where possible, sources were tagged according to the 'best fit', even if imperfect.
- Assessing the research quality of each literature source. Assessments of research quality are an important aspect of systematic literature reviews and rapid evidence assessments, as they allow for aggregated analyses of biases, research quality and overall academic rigour. In carrying out this review, however, the research team was unable to provide in-depth assessments of research quality given the quantity of sources involved. This was mitigated in part by excluding lower-quality sources according to the inclusion/exclusion criteria in Annex F.
- Removing all duplicate sources. Whilst attempts were made to remove all duplicate entries, some may remain in the database. Given the volume of sources, it was not possible for one researcher to compare all data entries, and automated methods of identifying duplicates (such as comparing text in titles and abstracts) are not foolproof.
- Applying different search engine strategies in different languages. In designing the non-English language search strategies, the research team sought to balance consistency and reproducibility with tailoring of search strategies to the nuances of different languages.
- Accessing full articles. In carrying out the data extraction, titles, abstracts and full texts were consulted as required in order to capture available information. Whilst many literature sources are open source, others are locked behind paywalls. RAND Europe has institutional access to various academic databases, but there were nonetheless instances where full access to a source was not available.[14] In these instances, where possible, the data extraction was carried out using the source abstract and title alone.

[14] The full text was unavailable in 13 per cent of sources.

Table 1. Summary of data extraction criteria

Criteria	Sub-categories[15]
Relevance to research questions	Relevant to RQ1, RQ2, RQ3, RQ4 and RQ5.
Language of publication	English, French, Spanish, Chinese, Arabic.
Research design	Epistemology/theoretical, descriptive, exploratory, causal analysis, comparative and cross-national research, survey, cross-sectional research, longitudinal research, experimental/quasi-experimental research, evaluation research, case study, pilot study, participatory research, action research, ethnographic research, behavioural research, meta-analysis, systematic review, secondary analysis, digital social research, mixed-method research, interdisciplinary and multidisciplinary research, other – qualitative.[16]
Geographic location	Global, country-specific.
Income level	High income, upper middle income, lower middle income, low income.[17]
Security status	Conflict, post-conflict, fragile/insecure, secure. (Note: included when self-reported by sources only.)[18]
Type of violence	Physical, sexual, psychological, deprivation/neglect, cyber.
Type of violence (more specific)	Physical (interpersonal physical violence; violence with heavy weapon; theft, looting, rioting, blockades, robbery, similar; arrests, kidnapping, abduction, forced displacement, similar; violent environment), sexual, psychological (verbal abuse; harassment; intimidation; bullying; threatening behaviour; aggression; stalking; disruptive behaviour), deprivation/neglect (structural violence, refusal of treatment, difficult/unequal access; strikes).
Target of violence	Healthcare workers, patients, affiliated third parties (friends, family, visitors), healthcare facilities, healthcare facilities (IT-specific), healthcare logistics. (Note: more specific targets of violence also captured as defined by sources.)
Perpetrator of violence	Healthcare workers, patients, affiliated third parties (friends, family, visitors), unaffiliated third parties (individuals, members of non-state groups, state representatives), institutional/organisational violence. (Note: more specific perpetrators of violence also captured as defined by sources.)
Location of violence	Healthcare facility, non-medical setting. (Note: more specific locations of violence also captured as defined by sources.)

[15] All criteria included a sub-category labelled 'other', which enabled users to input free text options. This was used when the text in the source could not easily be categorised into one of the predefined headers. Subsequent analysis was conducted on the free text inputs in order to classify sources appropriately.

[16] NCRM (2014).

[17] Prydz & Wadhwa (2019).

[18] The categorisation of conflict, post-conflict and fragile used self-reported definitions as opposed to country-level mapping. This was considered a more reliable means of categorisation, as the local security context can vary considerably within relatively small geographic areas. In instances where self-reporting was not provided and the security status could not be easily assigned, then no categorisation was added. Entries where no security status is assigned are included in analyses of the overall evidence base but not in analyses specifically of conflict, post-conflict and fragile environments.

(RQ1-specific) Specific focus of study	Characteristics of violence, prevalence of violence, antecedents of violence, causes/drivers of violence.
(RQ2-specific) Type of impact	Personal impact on healthcare workers, personal impact on patients, aggregated impact on healthcare delivery, aggregated impact on healthcare access.
(RQ3-specific) Type of intervention	Describes or evaluates existing interventions, describes or evaluates new interventions.
(RQ3-specific) Specific type of intervention	Implementation of protection/security measures and techniques, training, guidelines, tools, policies/strategies, legislation.
(RQ3-specific) Effectiveness of intervention	Effective, mixed, ineffective. (Note: recorded when self-reported by sources only.)

1.6.2. Method 2: Semi-structured key informant interviews

Key informant interviews were used to explore the views of a range of different stakeholders within the field of violence against healthcare, focusing primarily on the identification of research gaps (RQ4) but where relevant also including discussions on the status of current research (RQ1 to RQ3).

A total of 14 interviews were conducted, with a list of interviewees provided in Annex D. Names are given on this list only where interviewees provided written consent for this to happen. The selection of interviewees was based on various factors including:

- Extensive track record in researching and coordinating research on violence against healthcare.
- Experience in designing approaches to documenting/reducing violence against healthcare.
- Experience in organisations identified as prominent in the context of work involving documenting or reducing violence against healthcare.
- Expertise relevant to specific issues identified in the literature review (e.g. structural effects of conflict on violence against healthcare).
- Expertise in violence against education or violence against social workers, two areas which were confirmed as contexts potentially relevant to violence against healthcare research.

The selection aimed to include stakeholders across the following three stakeholder groups:

- Academia
- Non-governmental organisations (NGOs)
- Government agencies.

In addition, the research team sought to balance the interviewee selection with regards to their regional expertise, ability to comment on violence against healthcare in conflict and non-conflict settings, and knowledge of violence in low-, middle-, and high-income countries.

The key informant interviews were conducted using a semi-structured approach, which combines predefined questions with flexible and open follow-on questions and discussions.

Caveats and limitations of key informant interviews

There were a number of caveats and limitations to the key informant interviews, including:

- Interviewee response rate. The study team contacted around 40 stakeholders, from which 14 interviews were secured with 15 interviewees.[19] Response rates were low for stakeholders focusing on research on high-income countries, on conflict environments not located in the Middle East, and on areas outside of healthcare (education and social work).[20]

[19] Two individuals were interviewed in the same interview.

[20] These themes were added to the research design in order to understand the relevance and applicability of research in related fields of work.

- Interviewee representation across conflict and non-conflict settings. Related to the above point, although the research team aimed to achieve a balance of interviewees between conflict and non-conflict affected areas, across low-, medium- and high-income countries, and across different geographic locations, the interviewee selection was ultimately skewed towards conflict-affected areas and low- and medium-income countries. This is partially attributable to response rate, but also a result of representatives in non-conflict and high-income areas focusing less specifically on violence against healthcare and more broadly on medical research. Researchers focusing on healthcare in high-income and non-conflict environments appear more often to produce wider portfolios of work that do not focus in particular on violence, making it more challenging to identify appropriate experts in the field.
- Interviewee breadth versus depth of expertise. The study team prioritised interviews with experts who have extensive expertise and broad knowledge relevant to violence against healthcare, rather than selecting those with deep knowledge of specific niche areas within the field. Nonetheless, it is important to acknowledge that individual interviews will always contain a degree of personal bias. When integrating interviewee findings into the overall analysis, the research team were careful to ensure that findings were corroborated across multiple sources where possible.

1.6.3. Method 3: Internal workshops

Internal workshops were carried out throughout the duration of the project to support its design and implementation, and in particular to support the identification of research gaps (RQ4). The identification of research gaps required the consolidation of findings from both the structured literature review and key informant interviews, and involved several iterations of internal workshops that sought to cluster and refine results into a coherent set of research gaps (see Chapter 3).

1.6.4. Method 4: STREAM workshop

The prioritisation of future research (RQ5) was carried out using an internal STREAM (Systematic Technology Reconnaissance, Evaluation and Adoption Method) workshop with senior RAND researchers from security and health research teams. Developed by RAND, STREAM is a structured workshop method originally used to assess the application and disruptive potential of new technologies; it has subsequently been applied to research prioritisation, including in the health domain.[21] The method guides workshop participants through a structured scoring process that assesses the expected impact and feasibility of implementation, both of which are considered useful criteria when comparing future areas of research. The scores provided by workshop participants are aggregated and used to compare the advantages and disadvantages of each item, with prioritisation achieved by ranking each item according to one or both criteria. For this study participants were also asked to score the relevance of each research gap to different stakeholders, including researchers,

[21] Cox et al. (2017).

policymakers and practitioners. This is intended to provide a further layer of analysis that supports more nuanced prioritisation based on the intended recipient of research.

The study team conducted an internal half-day workshop that applied the STREAM methodology to the evidence gaps identified. Participants were senior researchers at RAND Europe, selected based on their personal experience either in healthcare and/or security, and either as a practitioner or a researcher, or both. In total, eight internal experts attended the workshop in addition to members of the project team.

Caveats and limitations of the STREAM workshop

STREAM workshops are a useful tool for gathering and interpreting responses from multiple experts in a field. There are, however, a number of limitations to the approach, including:

- Different interpretations of assessment criteria. The STREAM assessment criteria (see Chapter 4) were intentionally defined at a high level in order to facilitate scoring of research gaps during the STREAM workshop. Although workshop participants were provided with specific guidance on scoring research gaps in a consistent manner, there will always be a degree of personal bias when interpreting and applying scoring criteria.
- Different interpretation of research areas. Workshop participants were provided with detailed explanations of research gaps similar to those provided in Chapter 3. As above, there will inevitably be a degree of personal bias in the interpretation and scoring of these research gaps (derived, for example, from the personal experiences of workshop participants).
- Varying exposure to and understanding of literature specifically relating to violence against healthcare. All workshop participants are senior researchers in their field, with considerable subject-matter expertise in different areas of security and/or health. All participants also have had some exposure to literature on violence against healthcare and/or firsthand practitioner or policymaker experience in the field. Participants were nonetheless keen to emphasise their range of experiences and areas of knowledge, which in turn may lead to biases in workshop discussions and in scoring exercises.
- Scope of research gaps. The research gaps identified in Chapter 3 are relatively broad in scope, which results primarily from the wider scope of the overall review. This made it more challenging for workshop participants to assign concrete scores to each research gap, since a broad definition likely corresponds to a greater range of possible research proposals that may be carried out to address each research gap.
- Statistically low number of workshop participants. Whilst the workshop participants provided highly valuable insights, from a purely statistical perspective the number of participants (n=8) limits the significance and reliability of the analysis presented in Chapter 4. Further research in this area may seek to carry out further iterations of the STREAM workshop in order to increase the quantity and range of participants engaging in the scoring exercise, and hence increase the robustness of the results.
- Workshop participants as researchers. Workshop participants were selected based on their extensive professional experience in either security and/or health. Whilst this included individuals with practitioner and researcher experience, participants were all professional

researchers at RAND Europe at the time of the workshop. This may introduce a bias into the scoring that overemphasises the perspectives of researchers compared to both practitioners and policymakers.

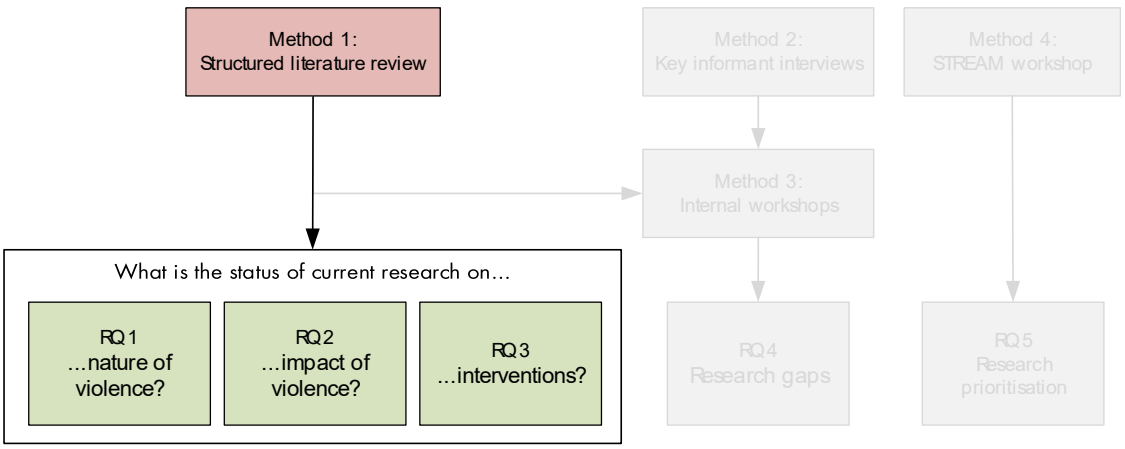
2. Review of existing evidence

An 'evidence base' may be defined as the full set of available research on a particular topic or field, including research from academia, government, businesses, charities and other non-governmental organisations (NGOs). In this study, the evidence base excludes media reports and other forms of literature that simply report on incidents of violence without conducting structured analysis.

This chapter provides an overview of the existing evidence on violence against healthcare, based primarily on the findings of the structured literature review. As described in Chapter 1, the review was carried out to assess the quantity and quality of research on the nature (RQ1) and impact (RQ2) of violence against healthcare, and on interventions against it (RQ3). This was achieved through a quantitative data extraction from 1,412 sources based on predefined criteria, including relevance to each research question, research design, research method(s), geographical coverage, language, and type(s), target(s) and perpetrator(s) of violence.

The chapter begins with an overview of the literature and the way in which violence against healthcare is defined in existing research. It then explores the ways in which existing research tackles the nature and impact of violence, and the interventions used to safeguard healthcare against violence. Examples of existing research and summaries from systematic literature reviews are provided where possible to contextualise and expand on research findings. Disaggregated findings for conflict, post-conflict and fragile locations are also provided, as this forms a relatively small body of research that is otherwise lost in aggregated analyses of the overall evidence base (see Figure 9). In most instances, data mapping is non-exclusive, meaning sources may be tagged to one or more criteria where relevant. This reflects the complex nature of research that often applies several methods to address more than one area of interest.

Figure 5. Research method and research questions for Chapter 2



2.1. Overview of the evidence base

This section provides high-level summaries of the data and research methods used in the literature, covering all relevant sources identified through the review.

The majority of the literature is academic as opposed to grey

Almost all sources identified through the literature search are classified as academic sources (95 per cent), with a comparatively small number (5 per cent) classified as grey literature.[22] This may in part be due to the underlying approach to the literature search, which focused primarily on databases of academic literature and applied relatively strict inclusion/exclusion criteria (see Section 1).

Grey literature sources include reports published by universities,[23] NGOs,[24] governments (both local and national),[25] private sector organisations[26] and associations,[27] as well as collaborations between multiple different stakeholders.[28] The ICRC has published the highest number of grey literature sources for any single organisation (12 publications plus additional collaborations), although a number of other organisations and collaborations, such as Safeguarding Health in Conflict and various departments of the UK government, have published multiple grey literature sources in this area. Grey literature sources cover various different contexts and types of violence, including physical attacks on healthcare in conflict areas, violence against healthcare workers in non-conflict areas, and cyber attacks on digital healthcare infrastructure.

The volume of literature published each year has increased steadily over the last 10 years

The volume of literature published each year on violence against healthcare appears to have risen steadily over the last 10 years, with the volume published in 2018 between three and four times greater than in 2009 or 2010. Figure 6 illustrates this upward trend, with the observed decrease in 2019 likely due to the data collection for this research taking place around midway through that calendar year.

[22] At times it was difficult to differentiate between academic and grey literature sources. This includes, for example, reports in academic-looking (but not peer reviewed) journals. The figures quoted should be considered an approximate value only.

[23] See, for example, Aldave et al. (2013).

[24] See, for example, MSF (2008) and ICRC (2015a).

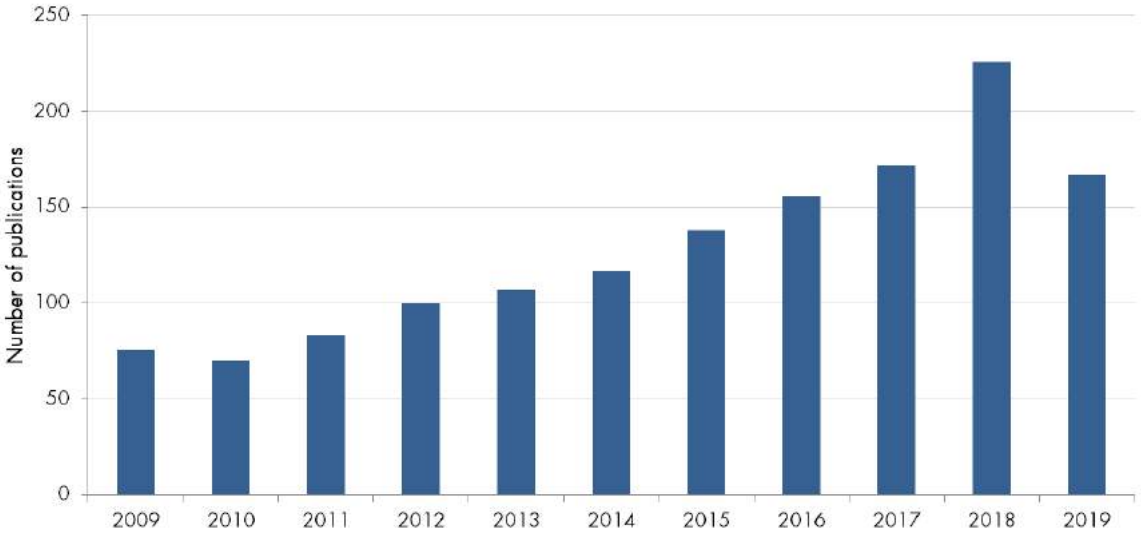
[25] See, for example, NAO (2018), ONVS (2019) and Junta de Extremadura (n.d.).

[26] See, for example, IBM Security (2017).

[27] See, for example, BMA (2018).

[28] See, for example, Buissonniere et al. (2018) and Safeguarding Health in Conflict (2018).

Figure 6. Quantity of literature on violence against healthcare published each year between 2009 and 2019

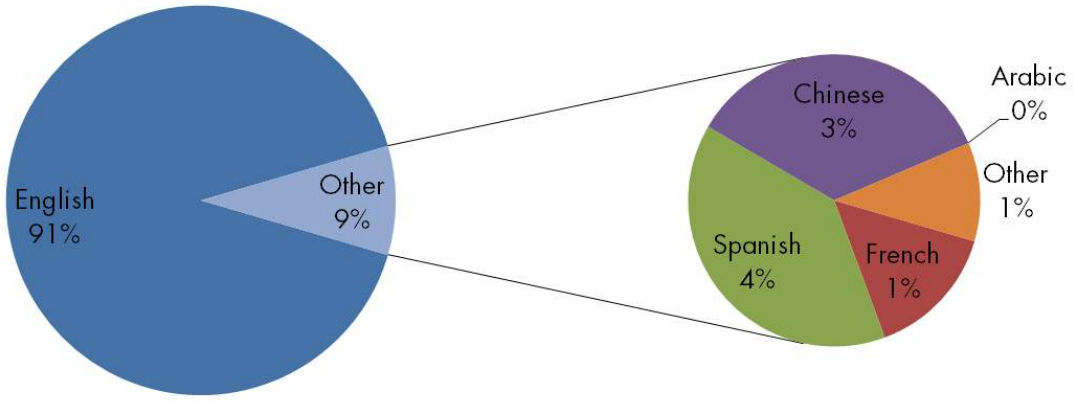


Although not investigated here, it is important to acknowledge that there may be a number of underlying drivers for this observed trend, including possible methodological errors such as biases in data collection towards more recent publications. Google and Google Scholar searches, for example, may be more prone to temporal bias (i.e. prioritise more recent publications) due to their underlying search engine algorithms. However, we are not aware of any temporal biases in the protocol-driven data collection and analysis, and the observed trend in Figure 6 is retained even when the search results from Google and Google Scholar are removed.

Most sources are published in English, but literature is also available in non-English languages

The vast majority (90 per cent) of literature identified in this study has been published in English.[29] This is perhaps unsurprising given that the primary, protocol-driven literature searches were carried out in English. The literature review did, however, identify 128 relevant non-English language sources (i.e. where the main body of the report is not available in English), including 47 Chinese sources, 54 Spanish sources, 19 French sources, and 14 sources in seven other languages including Korean, Portuguese and Polish. Whilst this constitutes only around 10 per cent of the total identified literature (see Figure 7), it nonetheless highlights the presence of non-English sources that would otherwise be missed in English-language only reviews, which is of particular relevance given the global nature of this review. A brief summary of the non-English language literature sources is provided in Box 1 to Box 4 below, and detailed search strings are presented in Annex F.

Figure 7. Percentage of literature in English and non-English languages



[29] This refers specifically to the language of the main body of the report.

Box 1. Summary of French-language literature sources

The French-language literature search identified 19 sources, including academic sources published by French universities,[30] the French government,[31] NGOs and other organisations.[32] Almost all sources focus on violence in French-speaking countries, including France, Senegal, Haiti, Mali and Canada, although a small number (3) focus on non-French speaking countries (Israel and the West Bank, Syria). The majority of sources also focus on the nature of violence, including the prevalence of violence and the causes/drivers of violence against healthcare. Few sources (1) study the impact of violence, and similarly, few (5) consider interventions to mitigate the prevalence or impact of violence against healthcare. French-language sources cover a range of different contexts and types of violence, including both physical and non-physical forms of violence, structural violence, cyber attacks, and violence in both conflict and non-conflict areas.

Box 2. Summary of Spanish-language literature sources

The Spanish-language literature searches returned 54 relevant sources. The majority of sources are academic publications (42), including articles from Spanish[33] and South American[34] universities, although a number of grey literature sources (12) were also identified, including articles from regional government[35] and organisations based in Spain[36] and South America.[37] The majority of sources focus on violence in either Spain or South American countries, including Argentina, Chile, Peru, Mexico and Brazil, and – in line with other areas – focus primarily on understanding the nature of violence (including both the prevalence and drivers of violence) (49). Fewer articles focus on either the impact of violence (10) or interventions that seek to tackle violence against healthcare (7). The majority of Spanish sources consider violence as either physical and/or psychological violence, and focus on violence carried out against healthcare workers (40) (including nurses, doctors, emergency department staff and others) by both patients and other healthcare workers.

[30] See, for example, K'ourioa et al. (2016).
[31] See, for example, Direction Générale De L'Offre De Soins (2019)
[32] See, for example, Human Rights Watch (2017).
[33] See, for example, Galián-Muñoz et al. (2012)
[34] See, for example, Barrios-Casas & Paravic-Klijn (2011).
[35] See, for example, Junta de Extremadura (n.d.).
[36] See, for example, Colegio de Médicos de Valencia (n.d.).
[37] See, for example, Bolzán et al. (2018).

Box 3. Summary of Chinese-language literature sources

Chinese-language literature searchers returned 47 relevant sources, almost all of which (46) are academic publications. All articles focus on violence against healthcare in China, and the majority (41) focus on violence against healthcare workers, including both physicians and nurses. The majority of sources (37) have been published in the last five years, suggesting a recent rise of academic interest in the area. The types of violence studied include physical violence (22), psychological violence (15) and sexual violence (5). No studies consider structural forms of violence, such as unequal access to healthcare by different members of the population. Most studies consider the nature of violence (33), although a comparatively high proportion (25) compared to other languages consider the impact of violence against healthcare (16) and interventions countering violence against healthcare (25).

Box 4. Summary of Arabic-language literature sources

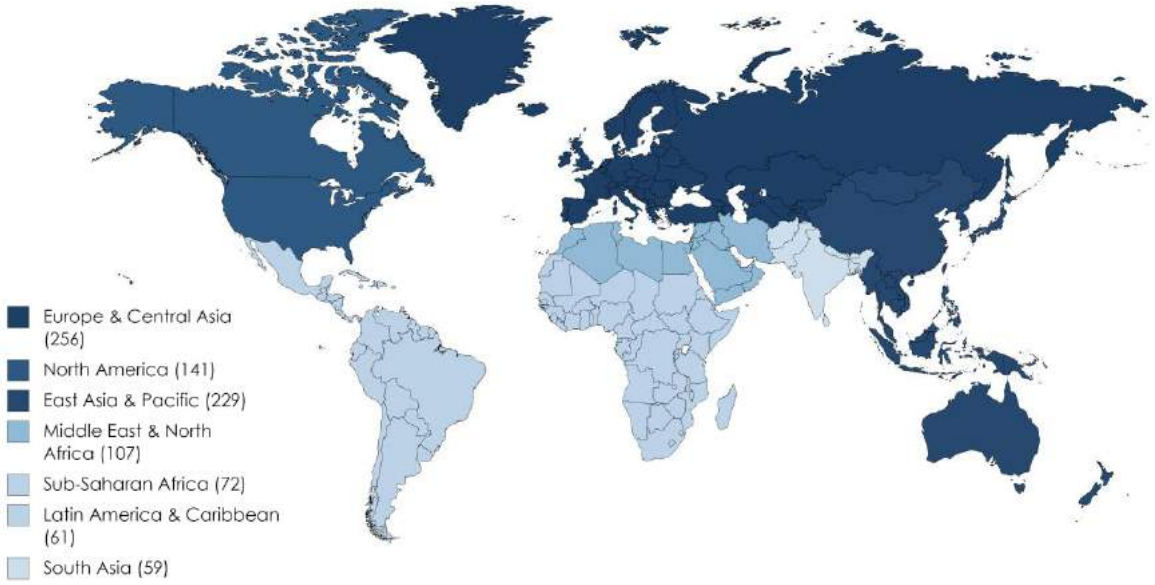
No Arabic-language sources were identified that passed the inclusion criteria. Arabic-language searches returned a large number of results that did not provide the rigour and reliability of academic sources (e.g. news reports), and were therefore excluded from further extraction or analysis. Additionally, an estimated third to half of the search results focused on topics not relevant to violence against healthcare, such as gender-based violence, violence against women and/or girls, and violence against children more generally. A total of 14 relevant sources were identified which, based on the title alone, held promise for further extraction. However, when these sources were reviewed further (abstracts and/or full text scan), it transpired that all were either news articles masked as academic or grey literature sources, or direct translations of English-language sources that had already been identified by the English-language literature search. This included reports from the World Health Organization (WHO), the International Committee of the Red Cross (ICRC), and the United Nations.

The lack of Arabic-language literature, while not unexpected, requires further investigation. It may be, for example, that literature emerging from Arab-speaking countries is being published in English or another non-Arabic language. Or it is possible that countries facing violence against healthcare, in particular those in conflict areas, may not have the time, resources and/or academic freedom and security to study events on the ground.

Most sources focus on violence against healthcare either in North America, Europe and Central Asia, or East Asia and the Pacific

Figure 8 illustrates the distribution of literature by the geographic focus of research,[38] and highlights a clear bias towards on hemisphere regions, including North America, Europe and Central Asia, and East Asia and the Pacific. Literature relating to these regions accounts for just under half (44 per cent, 626) of all sources, which is over twice as many sources as Latin America and the Caribbean, the Middle East and North Africa, South Asia and Sub-Saharan Africa combined (21 per cent, 299). A significant proportion of the studies (35 per cent, 508) do not have a clear geographic focus, either because it is not specified clearly in the report text, or because the report takes a non-geographic approach. This includes theoretical studies and studies with a global focus.

Figure 8. Number of publications by geographic focus of research



Note: figures refer to the focus of research as opposed to the locations of academic institutions and researchers.

Table 2 provides a more detailed breakdown by country, highlighting the top 20 countries by number of publications. The list contains a mixture of countries from all over the world, including those that are underrepresented in the above regional analysis. China and the United States are the focus of most research, with several European and Central Asian countries also in the top 20, including the United Kingdom, Spain, France, Germany and Turkey. In the Middle East and North Africa, just under

[38] This refers specifically to the region which contains the research subjects/participants, as opposed to the location of the research institute(s) that conducted the research.

half of all studies focus on Iran, with research also published on Syria, Israel and Jordan. In East Asia and the Pacific, research is carried out primarily in high-income countries, including China, Australia and Japan. In South Asia, research is carried out primarily in low-income countries, including India and Pakistan.[39] Table 2 also includes two countries from Sub-Saharan Africa (South Africa and Nigeria) and one from Latin America and Carribean (Brazil).

Table 2. Number of publications by country (top 20)

Countries	Number of publications	Region
China	133	East Asia & Pacific
United States	114	North America
Australia	61	East Asia & Pacific
United Kingdom	43	Europe & Central Asia
Spain	39	Europe & Central Asia
Iran	33	Middle East & North Africa
Italy	29	Europe & Central Asia
Turkey	29	Europe & Central Asia
Canada	27	North America
Brazil	24	Latin America & Caribbean
India	22	South Asia
Pakistan	22	South Asia
France	20	Europe & Central Asia
Germany	16	Europe & Central Asia
South Africa	16	Sub-Saharan Africa
Israel and West Bank	15	Middle East & North Africa
Jordan	14	Middle East & North Africa
Japan	12	East Asia & Pacific
Nigeria	12	Sub-Saharan Africa
Syria	12	Middle East & North Africa

Note: locations refer to the focus of research as opposed to the locations of academic institutions and researchers.

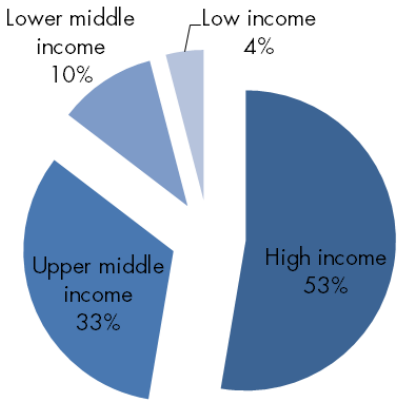
The majority of the literature focuses on high- and upper-middle-income countries

Where specified, the majority (86 per cent) of research on violence against healthcare focuses on high- and upper-middle-income countries, whilst low- and lower-middle-income countries account for just 14 per cent of all publications in which location is specified. This indicates a strong bias in the evidence base towards high- and upper-middle-income countries.[40]

[39] This uses the World Bank's categorisation of low, lower middle, upper middle and high income, and is assigned according to the country(ies) of focus with a given source.

[40] This uses the World Bank's categorisation of low, lower middle, upper middle and high income, and is assigned according to the country(ies) of focus with a given source.

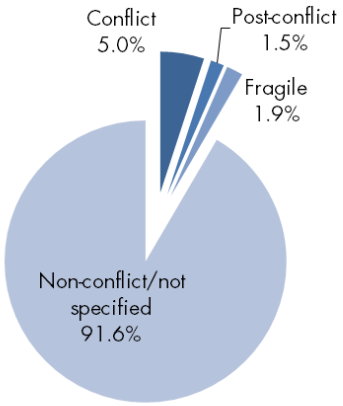
Figure 9. Percentage of publications by income brackets (as a percentage of all sources where location is specified)



Only a small proportion of sources focus explicitly on conflict, post-conflict and fragile environments

Only a small proportion of published literature focuses explicitly on conflict (5 per cent), post-conflict (1.5 per cent) or fragile environments (1.9 per cent). The majority of literature (91.6 per cent) either does not describe the local security environment (in which case it is assumed to be non-conflict), or describes the local security environment as explicitly non-conflict. This categorisation relies on self-reported definitions of conflict, post-conflict and fragile environments within each source as opposed to country-level mapping. This was considered a more reliable means of categorisation, as the local security context can vary considerably within relatively small geographic areas.

Figure 10. Percentage of literature sources by conflict, post-conflict and non-conflict

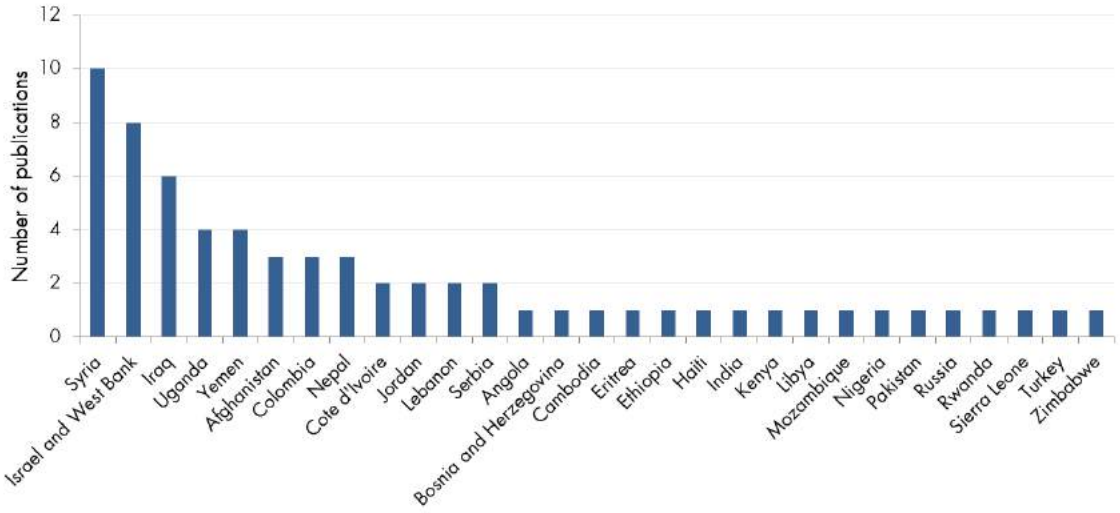


The literature on conflict, post-conflict and fragile environments focuses mainly on countries in the Middle East

Figure 11 provides a breakdown of sources on violence in conflict areas according to the location of study, and indicates that countries in the Middle East, including Syria, Israel and the West Bank, Iraq and Yemen, feature most commonly in the literature. Other countries and regions span South Asia, Europe, Africa, and Central and South America, although studies in these areas are comparatively less common, and most countries feature just once or twice in existing studies. Note that the attribution

of countries as 'conflict' areas is based on author definition only, and is not based on judgements or mapping made by the research team.

Figure 11. Number of sources by country of focus (conflict, post-conflict and fragile environments only)

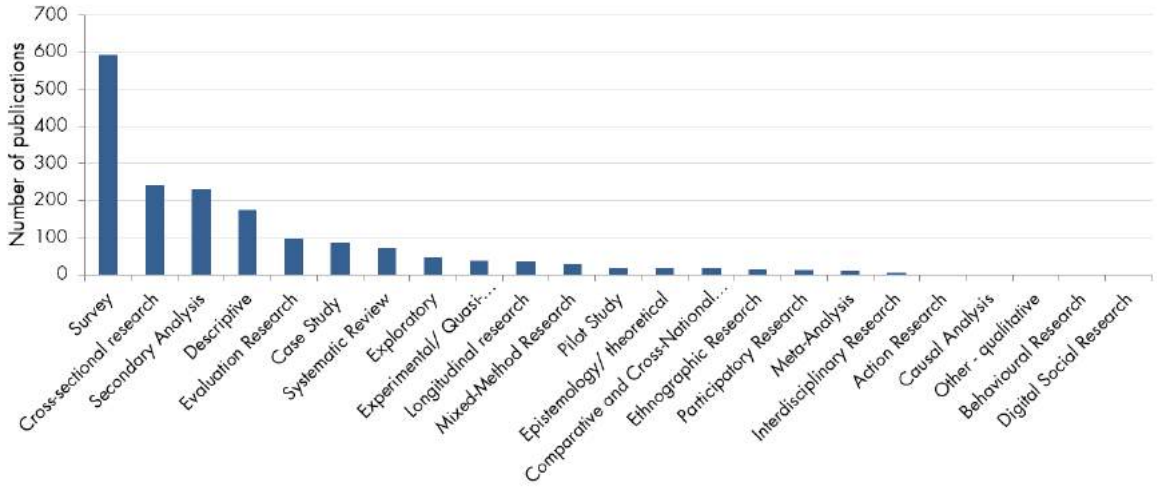


Surveys are the most common research design

Figure 12 illustrates the frequency of various research designs in the evidence base, defined according to the taxonomy developed by the National Centre for Research Methods.[41] Surveys are the most common research design (41 per cent), with cross-sectional research (17 per cent), secondary analysis (16 per cent), and descriptive research designs (12 per cent) also comparatively common. Other forms of research are comparatively less common, including longitudinal studies (3 per cent), epistemological/theoretical research (1 per cent) and ethnographic research (1 per cent). Note that many of the research designs listed in Figure 12 are not mutually exclusive, with individual studies often combining two or more approaches within their overall research design. Surveys, for example, may be cross-sectional or longitudinal, and secondary analysis can include systematic reviews.

[41] NCRM (2014). For further discussion of the NCRM taxonomy see Beissel-Durrant (2004).

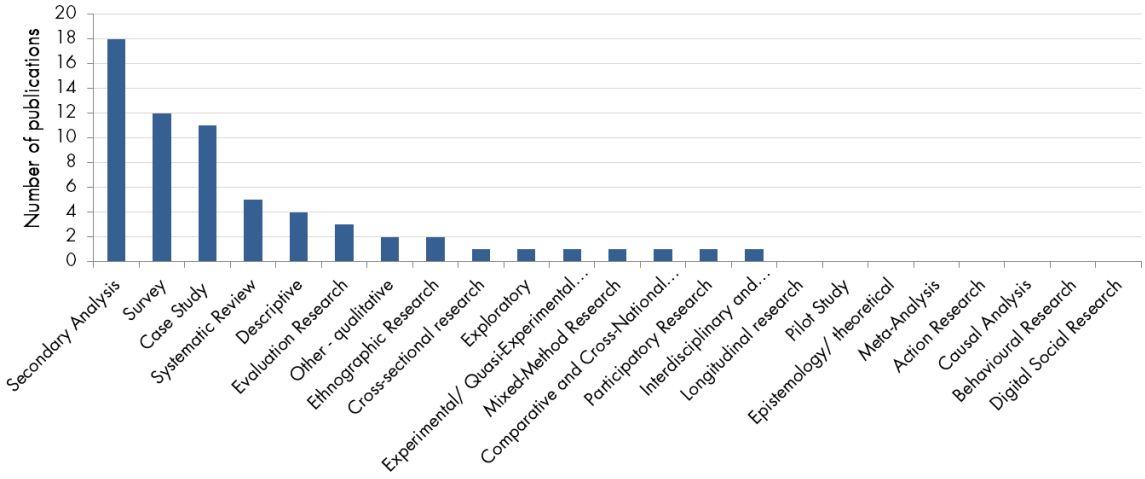
Figure 12. Number of publications by research design



Research in conflict, post-conflict and fragile environments primarily uses secondary analysis

Looking specifically at research in conflict, post-conflict and fragile environments, Figure 13 indicates that surveys and secondary data analysis are also commonly used to conduct research in such areas, together with case study analysis. Other types of research are comparatively less common. This is perhaps unsurprising given the challenges in conducting on-the-ground research in less stable and more violent environments.

Figure 13. Number of publications by research design (conflict, post-conflict and fragile environments only)



2.2. Conceptualisation of violence

This section explores the ways in which publications in the evidence base conceptualise violence, including the types of violence, targets of violence, perpetrators of violence and locations of violence.

2.2.1. Types of violence

Most studies conceptualise violence as either physical and/or psychological violence

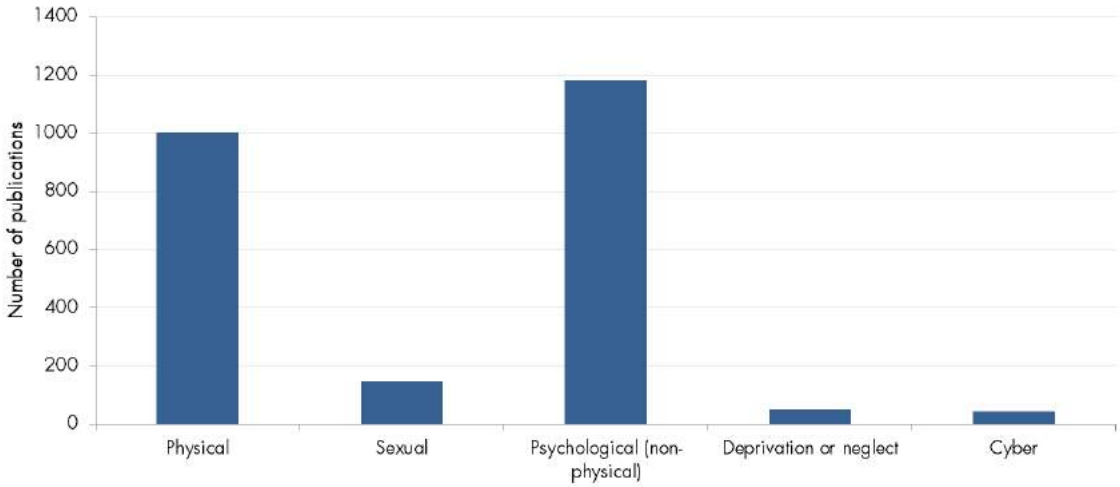
The majority of studies conceptualise violence against healthcare as either physical (70 per cent) and/or psychological (82 per cent) violence, with relatively few studies considering either sexual violence (10 per cent) deprivation/neglect (including structural violence) (7 per cent) or cyberattacks (3 per cent).[42] Note that these categories are not mutually exclusive, with just under two thirds of studies (63 per cent) conceptualising violence to include at least two categories (e.g. both physical and psychological violence – 60 per cent).

Physical violence is defined to include interpersonal physical violence (such as hitting, biting, disproportionate physical restraint, etc.), violence with heavy weapons, blockades, riots, looting, arrests, kidnapping, and other forms of physical assault. Sexual violence is defined to include rape, sexual assault and other forms of sexual abuse. Psychological (non-physical) violence is defined to include verbal abuse, harassment, mobbing, intimidation, bullying, aggression, stalking and general disruptive behaviour. Finally, deprivation or neglect is defined to include unequal provision or withholding of medical treatment, unequal access to healthcare, and other forms of violence including structural violence.

Cyber violence is defined as an additional category to those defined by the WHO (physical, sexual, psychological and deprivation/neglect).[43] It is difficult to categorise cyber within the existing WHO framework, since cyber attacks, for example, can have physical and psychological consequences, and be used to discriminate access to healthcare (deprivation/neglect). Cyber violence is defined to include cyber attacks on medical IT infrastructure and IoT devices, as well as fraud and medical identity theft.

[42] This uses the WHO typology of violence. See WHO (n.d.a).
[43] WHO (n.d.a).

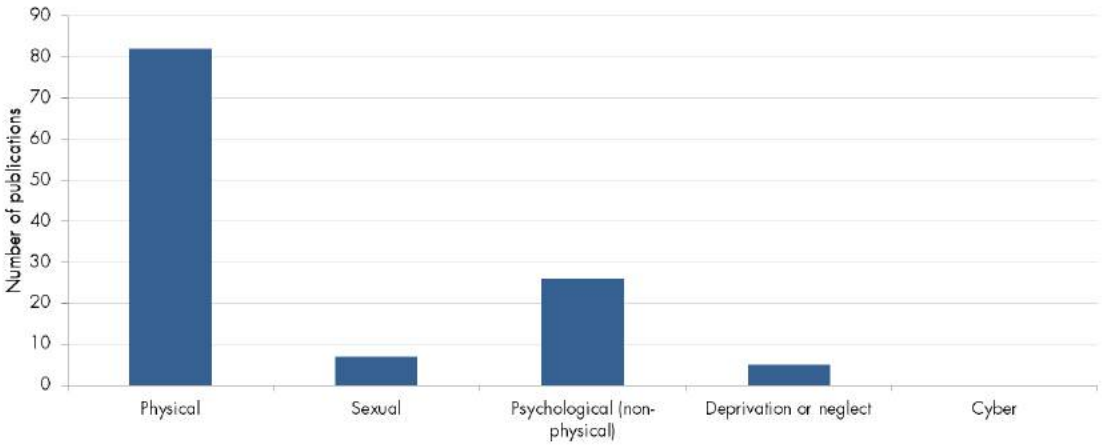
Figure 14. Number of publications that include different forms of violence



Research in conflict, post-conflict and fragile environments focuses primarily on physical violence

Figure 15 summarises the types of violence included in studies focusing specifically on conflict, post-conflict and fragile environments. Mirroring the overall evidence base, physical violence is studied most frequently in the literature, with sexual violence, deprivation/neglect and cyber violence less common. However, in contrast to the overall evidence base, psychological violence features less frequntly in the literature relating to conflict, post-conflict and fragile environments, in particular when compared to physical violence. This indicates that psychological violence is primarily studied in non-conflict settings.

Figure 15. Number of publications that include different forms of violence (conflict, post-conflict and fragile environments only)

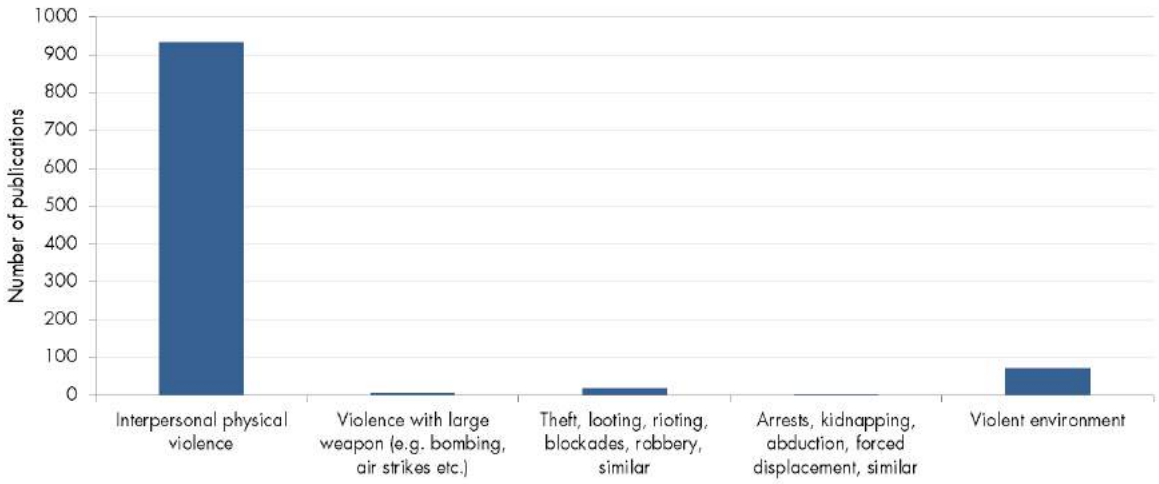


Sources that examine physical violence focus primarily on interpersonal physical violence

The literature on physical violence can be disaggregated into a number of different subsets of violence, including interpersonal physical violence, physical violence with large weapons, and other forms of more specific violence including theft, looting, arrests, kidnapping, etc. Five clusters of physical violence are outlined in Figure 16, together with the number of sources that define violence in this way, either in whole or in part. From Figure 16, it is clear that the majority of the literature focuses on forms of interpersonal physical violence, which includes forms of physical violence without a weapon (such as pushing, hitting, biting, etc.), forms of physical violence with a personal weapon (such as a knife or handheld gun), as well other forms of physical violence such as non-consensual physical restraint of patients. In contrast, a comparatively small number of sources examine physical attacks with large weapons (5), theft, looting, rioting, blockades, robbery or similar (10), and arrests, kidnapping, abduction, forced displacement or similar (3). A slightly higher number of sources (67) focus on the challenge of accessing and delivery healthcare in violent environments, including conflict areas and post-conflict states.

There may be a number of drivers behind this observed weighting in the literature towards interpersonal physical violence, including conceptualisations of violence as interpersonal physical violence only, greater prevalence and/or impact of interpersonal physical violence, greater reporting and/or access to data on physical violence, the existence of standard methodologies for researching interpersonal violence in the healthcare sector,[44] and greater interest and funding for research on physical forms of violence among funding bodies, research organisations and individual researchers. These are suggested drivers only, and have not been explored further.

Figure 16. Number of publications that refer to specific types of physical violence

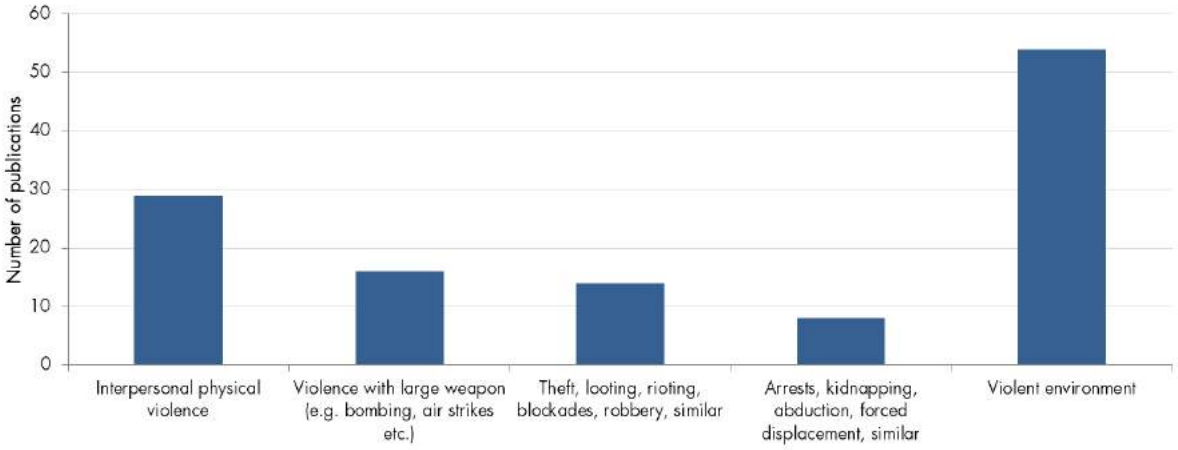


[44] See, for example, WHO (n.d.c.).

Sources that examine physical violence in conflict, post-conflict and fragile environments focus on different types of physical violence

Looking specifically at the conceptualisation of violence in studies within conflict, post-conflict and fragile environments, however, there is a more even focus across different types of physical violence, including violence with large weapons, theft, looting and blockades, and kidnapping and arrests. Since conflict areas are usually violent environments, it is perhaps unsurprising that the final category – violent environments – features commonly in this subset of literature.

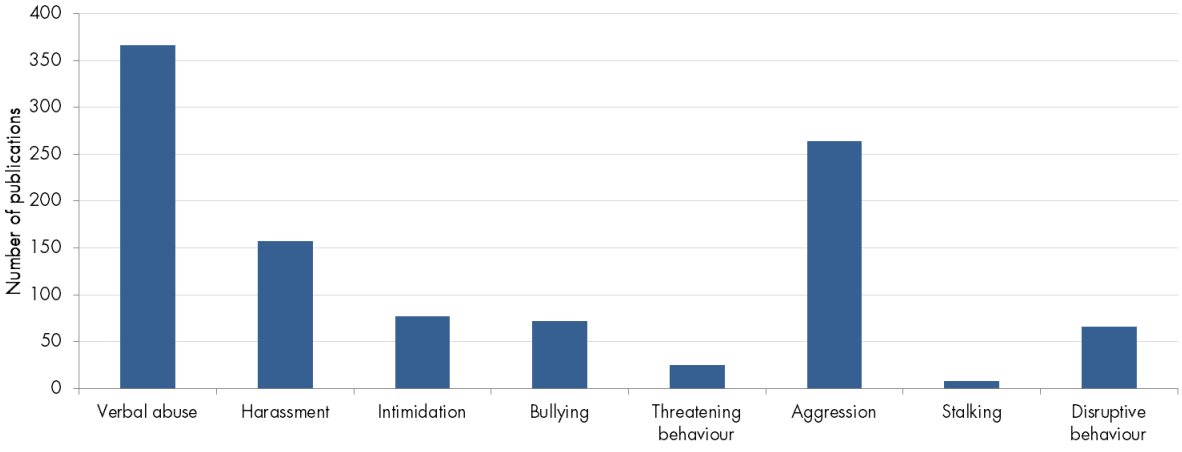
Figure 17. Number of publications that refer to specific types of physical violence (conflict, post-conflict and fragile environments only)



Sources that examine psychological violence focus primarily on verbal abuse and aggression

In Figure 18, psychological violence is broken down into eight categories: verbal abuse, harassment, intimidation, bullying, threatening behaviour, aggression, stalking and disruptive behaviour. The most common form of psychological violence studied in the literature is verbal abuse, with aggression and harassment also comparatively common. Stalking (8) and threatening behaviour (25) are mentioned much less frequently.

Figure 18. Number of publications that refer to different categories of psychological violence

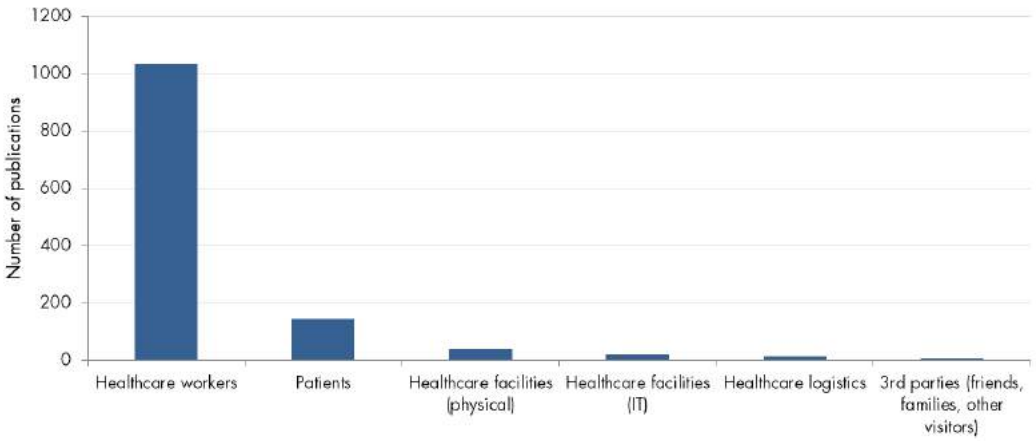


2.2.2. Targets of violence

Most studies focus on violence targeted towards healthcare workers

Figure 19 presents a breakdown of the literature by target of violence. Around three quarters of publications (76 per cent) study violence against healthcare workers, with a much smaller proportion of sources (11 per cent) studying violence directed towards patients. Violence towards healthcare facilities (either physical or IT infrastructure) features less commonly in the literature (4 per cent), as do violence against healthcare logistics (such as ambulances, supply vehicles, etc.; 1 per cent) and violence against third parties within a medical facility (such as friends and families of patients; 1 per cent). Note that the categories are not mutually exclusive.

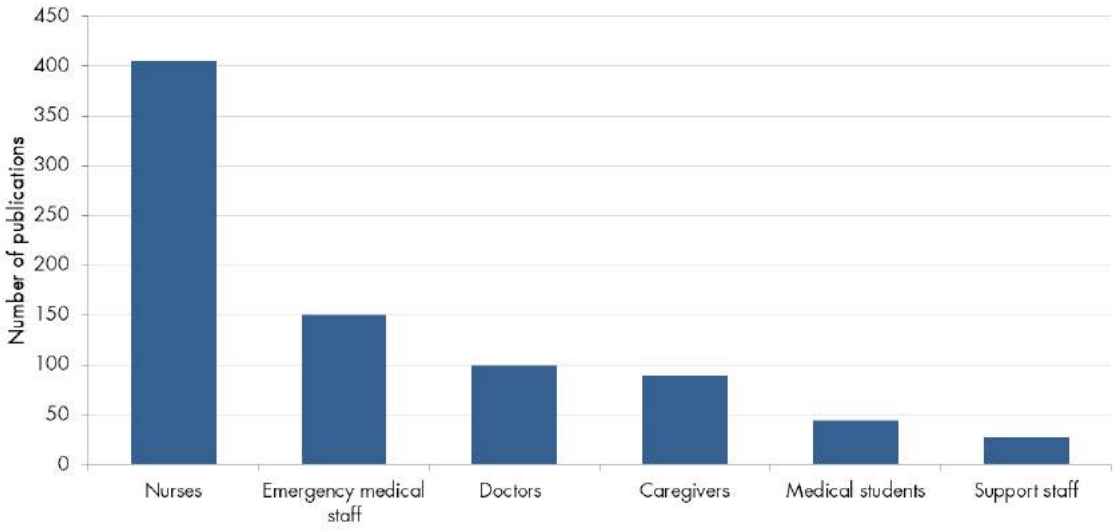
Figure 19. Number of publications by different targets of violence



Within literature that examines healthcare workers as targets, nurses are studied most frequently

Figure 3 provides a breakdown of targets of violence specifically within the category of healthcare workers, and highlights that just over one third (39 per cent) of these studies focus on violence against nurses. A smaller proportion of studies consider violence against other professions within the healthcare sector, including emergency medical staff (14 per cent), doctors (9 per cent) and caregivers (including social care providers, home service providers and psychiatrists; 9 per cent). Fewer studies (4 per cent) include medical students, and fewer still (2 per cent) include support staff, such as administrative staff, security staff, auxiliary personnel and different types of assistants (nursing assistants, physician assistants, patient care assistants, etc.).

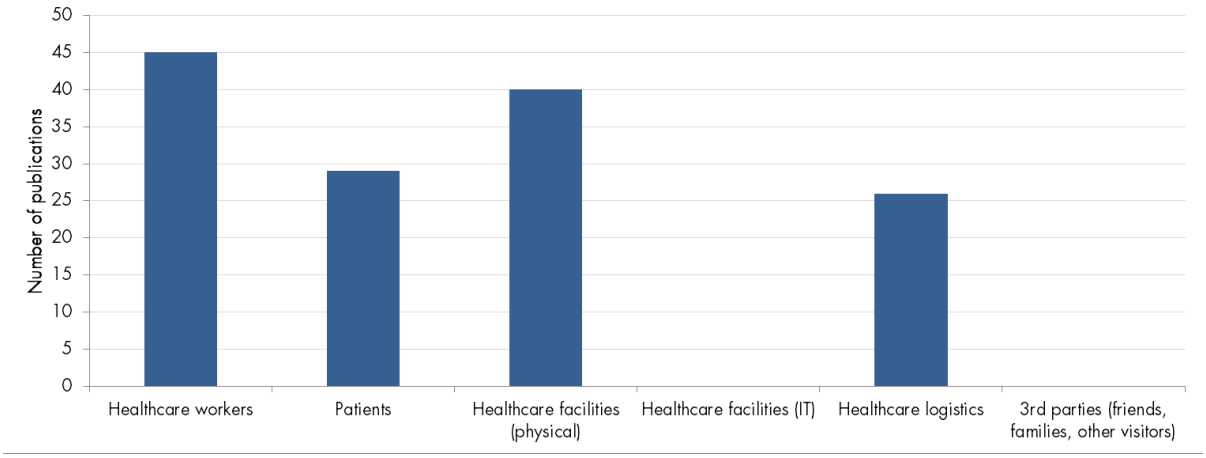
Figure 20. Number of publications by specific subsets of healthcare worker



Research in conflict, post-conflict and fragile environments focuses on different types of targets

Figure 21 summarises the types of targets that are examined in literature that focuses on violence in conflict, post-conflict and fragile environments. Mirroring the overall evidence base, research on healthcare workers as targets is most common. However, in contrast with the overall evidence base, research on conflict, post-conflict and fragile environments focuses relatively more frequently on other targets of violence, including patients, physical healthcare facilities and logistics. These latter two categories are relatively less common in the overall evidence base.

Figure 21. Number of publications by different targets of violence (conflict, post-conflict and fragile environments only)

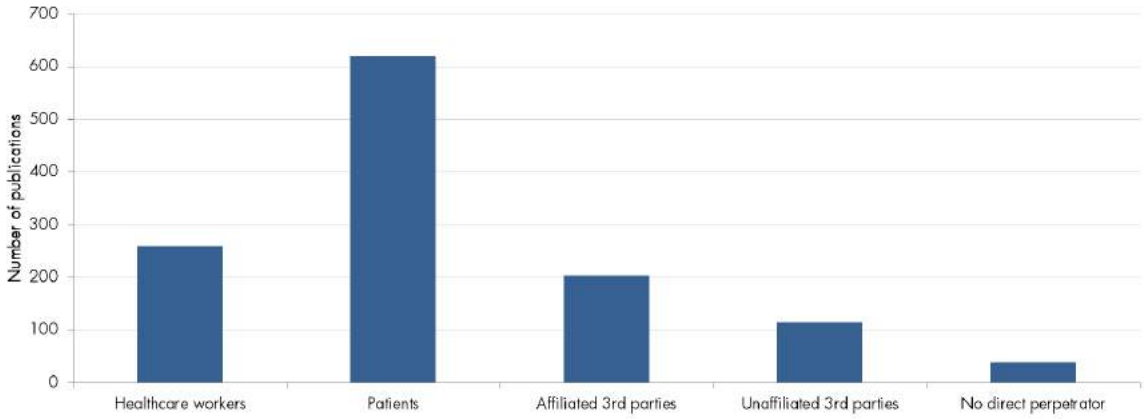


2.2.3. Perpetrators of violence

Where specified, most studies focus on violence carried out by patients

Figure 22 illustrates the number of publications by perpetrator of violence, including healthcare workers, patients, affiliated third parties (e.g. friends, family, etc.), unaffiliated third parties (e.g. lone individuals, members of non-state groups, state representatives, etc.), and instances of violence with no direct perpetrator (e.g. structural violence). Constituting 43 per cent of all identified studies, the most common type of perpetrator studied is the patient. Healthcare workers and affiliated third parties are included in 18 per cent and 13 per cent of literature sources respectively, whereas studies that include violence carried out by unaffiliated third parties (4 per cent) or no direct perpetrator (3 per cent) are both comparatively less common.

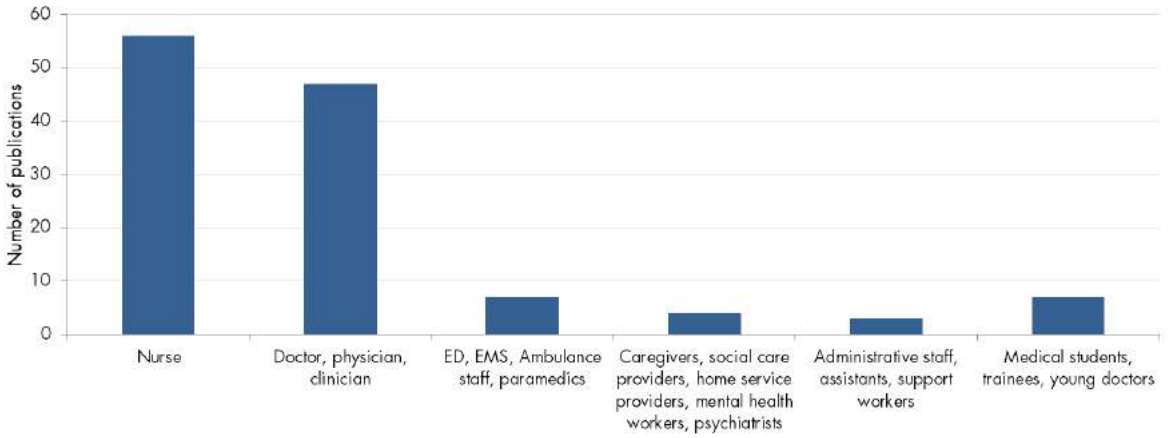
Figure 22. Number of publications by perpetrator of violence



Breaking down these categories further, the clearest subset of patients to emerge organically within the literature are those with mental health conditions, which includes individuals with schizophrenia, dementia and psychosis, as well a patients located in a psychiatric facilities. Patients with mental health conditions constitute just under one third (29 per cent) of all sources that include patients as perpetrators of violence. Other specific types of patient are also studied in the literature, including those in emergency departments, female patients, children and elderly patients, although these collectively constitute only 4 per cent of sources that study patients as perpetrators of violence. Two thirds of sources (67 per cent) in this category do not define specific subsets of patients.

Within the literature on healthcare workers as perpetrators, both nurses (23 per cent) and doctors (19 per cent) feature comparatively highly, with other subsets of healthcare workers, including emergency medical staff (3 per cent), caregivers (including social care providers, home support providers, etc.; 2 per cent), administrative staff (1 per cent) and medical students/trainees (3 per cent) featuring comparatively less frequently. As above, in the majority of studies that focus on healthcare workers as perpetrators of violence, the specific type of healthcare worker is not defined (52 per cent). The breakdown of healthcare workers as perpetrators is presented in Figure 23.

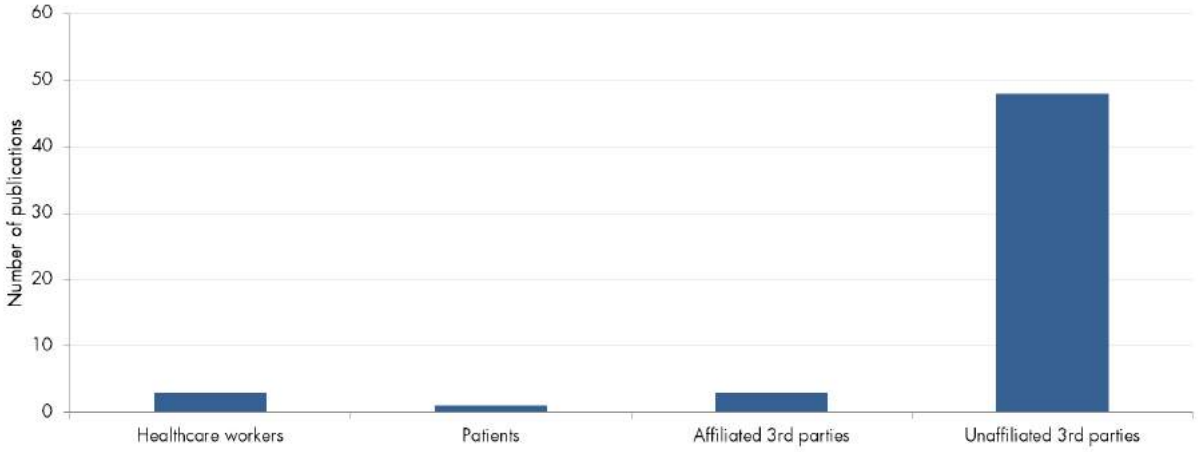
Figure 23. Number of publications by perpetrator of violence (healthcare workers only)



Where specified, most studies in conflict, post-conflict and fragile environments focus on violence carried out by unaffiliated third parties

Figure 24 illustrates the number of sources that examine different perpetrators of violence against healthcare, specifically within the literature on violence in conflict, post-conflict and fragile environments. In contrast to the overall evidence base illustrated in Figure 22, most literature in conflict, post-conflict and fragile environments studies violence carried out by unaffiliated third parties, which includes state representatives, members of non-state armed groups, and unaffiliated third parties (such as individual attackers not linked to the state or non-state groups). Violence carried out by healthcare workers, patients and affiliated third parties is rarely studied in the literature.

Figure 24. Number of publications by perpetrator of violence (conflict, post-conflict and fragile environments only)

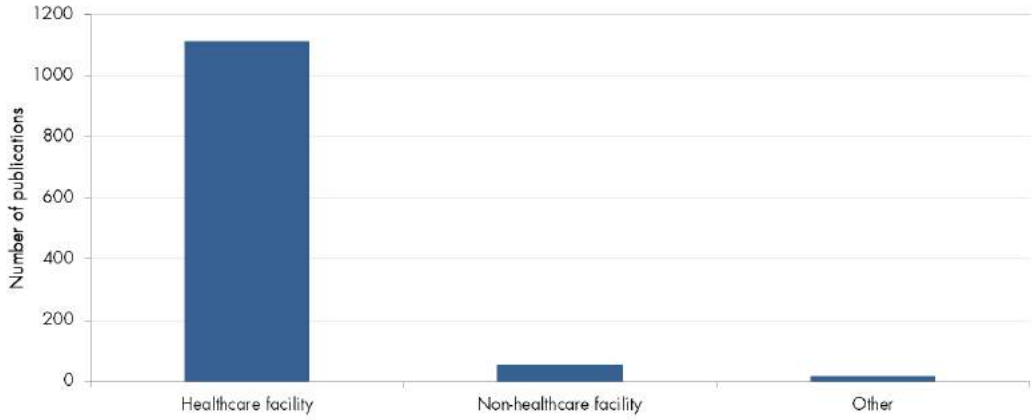


2.2.4. Locations of violence

Most studies focus on violence that occurs in healthcare facilities

Figure 25 illustrates the number of publications by different types of location of violence, including healthcare facilities (including hospital settings, emergency settings and psychiatric settings), non-healthcare facilities (such as paramedic responses, patient homes, etc.), and other locations (such as wider healthcare IT infrastructure). Healthcare facilities are overwhelmingly the location of violence most studied in the literature (82 per cent). Violence against healthcare in non-healthcare settings (4 per cent) is much less commonly observed in the literature. Violence in other locations (2 per cent) primarily refers to attacks on healthcare IT infrastructure, which may not necessarily be located within a healthcare facility (e.g. cloud computing). In 10 per cent of studies, no location was explicitly defined.

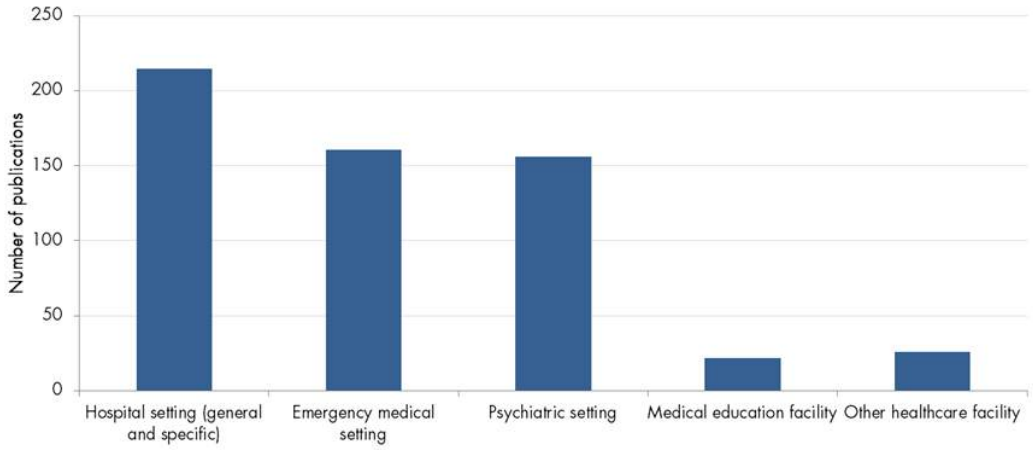
Figure 25. Number of publications by location of violence



A similar volume of research is conducted in hospitals, emergency and psychiatric settings

Broken down further into specific healthcare facilities, Figure 26 illustrates that a comparable number of studies of violence in healthcare facilities cover violence in hospital settings (19 per cent), emergency medical settings (14 per cent) and psychiatric settings (14 per cent). A smaller number of studies take place in education facilities such as medical schools and teaching hospitals (2 per cent), and in other healthcare facilities including GP surgeries, community facilities, nursing homes and primary care facilities (2 per cent).

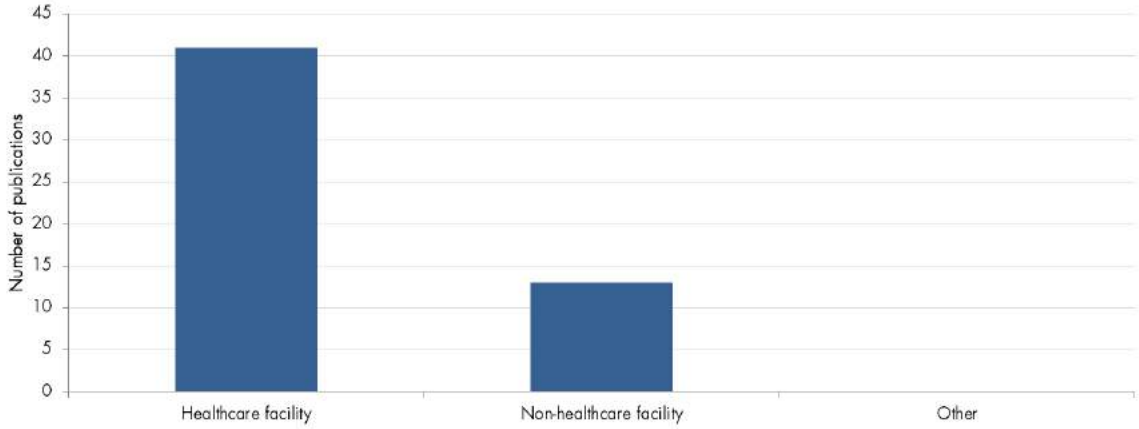
Figure 26. Number of publications by specific healthcare facility



Research on conflict, post-conflict and fragile environments similarly focuses on violence in healthcare facilities

Figure 27 summarises the locations of violence studied in the literature on violence against healthcare in conflict, post-conflict and fragile environments. Mirroring the overall evidence base, research focuses most often on violence in healthcare facilities, but (when compared to Figure 25) there are a comparatively higher number of studies in conflict, post-conflict and fragile environments that examine violence in non-healthcare locations.

Figure 27. Number of publications by location of violence (conflict, post-conflict and fragile environments only)



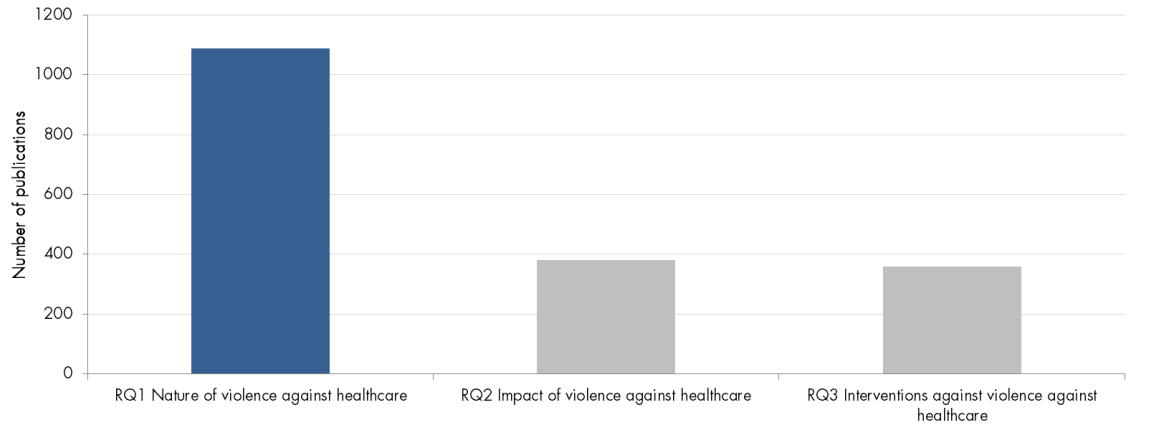
2.3. Evidence on the nature of violence against healthcare (RQ1)

This section focuses specifically on literature that addresses the nature of violence in some form, including studies of the characteristics, prevalence, antecedents and causes of violence.

Most studies focus on the nature of violence against healthcare

Figure 28 illustrates that the majority of identified publications (76 per cent) study the nature of violence against healthcare. This includes studies that explore the characteristics of violence, measure the prevalence of violence, identify antecedents/predictors of violence, and determine the drivers and causes of violence against healthcare. This figure is slightly lower for research that focuses specifically on violence against healthcare in conflict, post-conflict and fragile environments, with just over half (51 per cent) of publications studying the nature of violence against healthcare.

Figure 28. Number of publications by research question (RQ1 highlighted)

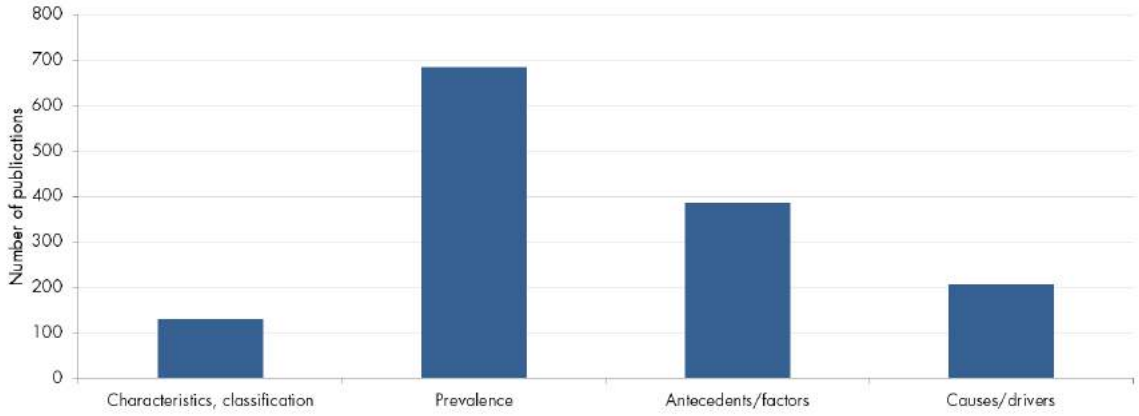


Most publications study the prevalence of violence against healthcare

Breaking down the literature sources within RQ1, Figure 29 illustrates that the majority (65 per cent) of publications within RQ1 study the prevalence of violence against healthcare. This includes, for example, studies that measure the prevalence of violence against psychiatric staff in a hospital setting,[45] or prevalence of lateral violence and workplace incivility between nurses.[46] Around one third (37 per cent) of publications study the antecedents of violence, which refers to factors or metrics that precede – but do not necessarily cause – instances of violence. Comparatively fewer studies investigate the causes/drivers of violence (19 per cent), and fewer still explore ways of classifying violence, typically in a qualitative manner (12 per cent). Note again that the categorisation of studies in these areas is not mutually exclusive.

[45] Atawneh et al. (2009).
[46] Bambi et al. (2018).

Figure 29. Number of publications by theme of study (RQ1only)



Box 5. Summary of findings from a systematic review of the prevalence of workplace violence against physicians

Nowrouzi-Kia et al. (2019) conducted a systematic review and meta-analysis of literature that examines the prevalence of workplace violence (WPV) against physicians. The authors identified 13 relevant studies, and concluded that two thirds (69 per cent) of physicians have experienced workplace violence in some form, including physical, verbal and sexual forms of violence.[47] A number of factors were linked to instances of violence, including working in remote healthcare areas, understaffing, mental/emotional stress of patients/visitors, insufficient security, and a lack of preventative measures. However, the authors noted that the existing literature is heterogeneous in nature, making comparisons between studies difficult, and that most studies are cross-sectional and exploratory.[48]

Box 6. Summary of findings from a meta-analysis of violence antecedents in psychiatric in-patient settings

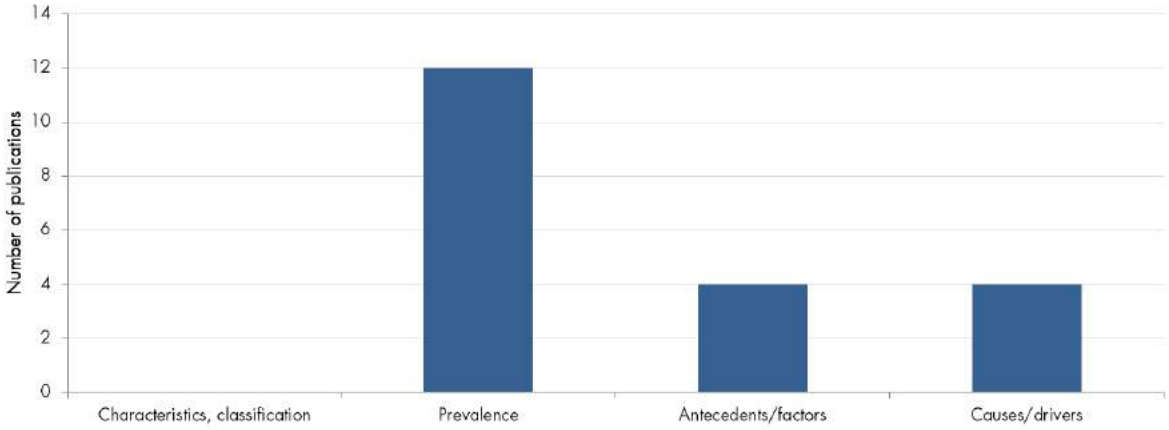
Papadopoulos et al. (2012) conducted a meta-analysis of available literature on the antecedents of violence and aggression in psychiatric in-patient settings. The authors found 71 relevant studies, and identified a number of commonly identified antecedents, including staff–patient interactions (such as intrusions into physical space, limiting personal freedoms, denying patient requests), patient behavioural clues (such as agitation, attention-seeking behaviour, confusion), and patient symptoms (such as substance abuse, tobacco withdrawal, sexual frustration). However, the authors noted a number of limitations to existing research, including high levels of heterogeneity across articles, a reliance on self-reported antecedents by members of staff, a lack of detailed recording of antecedents by medical staff, and a lack of evidence on the timing and sequencing of antecedents before an incidence of violence.[49]

[47] Nowrouzi-Kia et al. (2019, 108).
[48] Nowrouzi-Kia et al. (2019, 99, 107, 108).
[49] Papadopoulos et al. (2012, 425, 436).

Research in conflict, post-conflict and fragile environments also focuses on the prevalence of violence

Figure 30 provides a similar breakdown for research that focuses on the nature of violence in conflict, post-conflict and fragile environments only. The distribution of research is similar to the overall evidence base, with research focusing primarily on the prevalence of violence against healthcare, and fewer studies examining the causes, antecedents or classification of violence.

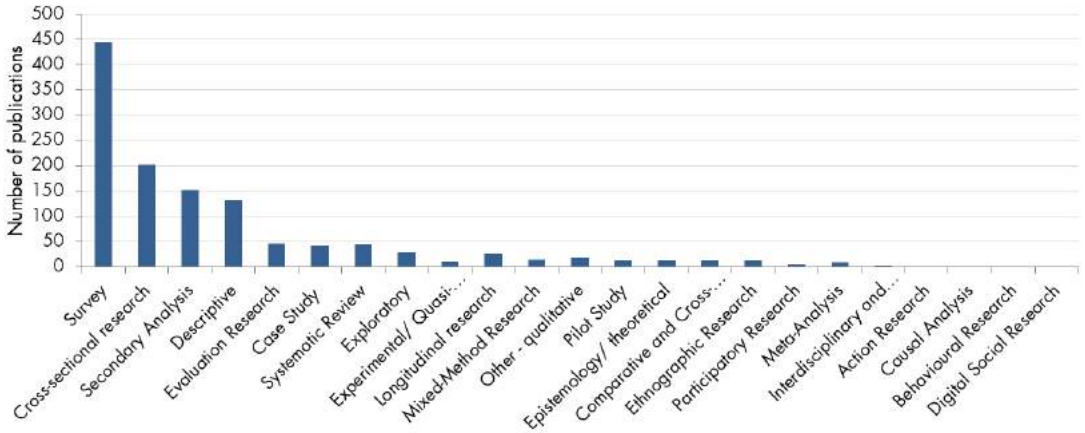
Figure 30. Number of publications by theme of study (RQ1 only; conflict-post-conflict and fragile environments only)



Surveys are the most frequently used research design in studies of the nature of violence

Figure 31 illustrates the number of publications studying the nature of violence by research design. The most common research design is surveys, with just under half (43 per cent) of all studies relating to RQ1 employing some form of survey in their research. Cross-sectional analysis (20 per cent), secondary analysis (15 per cent) and descriptive research approaches (13 per cent) are also comparatively common. Other approaches are less common, notably longitudinal research (2 per cent).

Figure 31. Number of publications by research design (RQ1 only)



These findings are reflected in the assessments of existing literature provided by systematic reviews and meta-analyses in this area. As noted in the next section, there are a number of systematic reviews

that examine specific topics within the nature of violence against healthcare, such as the prevalence of workplace violence against nurses in China[50] or the prevalence of harassment and discrimination in medical training.[51] Whilst some reviews highlight positive characteristics in the existing evidence base,[52] reviews are generally critical of the overall quality of research. A number of reviews, for example, highlight the high proportion of studies that use cross-sectional and descriptive approaches,[53] and identify a lack of longitudinal studies as a limitation.[54] Reviews also criticise the reliance on self-reported data,[55] including surveys and questionnaires, and a lack of consistent definitions of key research terms.[56] More generally, reviews criticise the high levels of heterogeneity and lack of standardisation in research approach, which limits the quality and reliability of conclusions that may be drawn from the literature.[57] These findings refer to research carried out in non-conflict areas, as no systematic reviews were found that examine available literature on the nature of violence in conflict, post-conflict and fragile environments.[58]

There are a number of systematic reviews of the nature of violence against healthcare, but they focus on certain types of perpetrators, targets and types of violence

In total, 46 systematic reviews[59] were identified as relevant to RQ1. Over half (58 per cent) focus on specific targets of violence, most commonly violence against nurses (13) and violence against healthcare workers (non-specific) (8). A relatively high number of reviews also focus on violence carried out in emergency departments (6), violence carried out by patients in psychiatric settings (9), and bullying/incivility/lateral forms of violence (7). Where defined, reviews tend to focus on the prevalence of violence (13) and antecedents of violence (12), with research on the characteristics of violence (6) and causes of violence (2) comparatively less common.

[50] Lu et al. (2018).

[51] Fnais et al. (2014).

[52] Cabilan & Johnston (2019), for example, conclude that the quality of studies of occupational violence in emergency departments is in all cases either moderate or high.

[53] Saxton et al. (2009), Taylor & Rew (2010), Fnais et al. (2014).

[54] Kleissl-Muir et al. (2018).

[55] Lu et al. (2018), Papadopoulos et al. (2012), Fnais et al. (2014), Nikathil et al. (2017), Kim et al. (2017).

[56] Embree & White (2010), Vidal-Martí & Pérez-Testor (2015), Cabilan & Johnston (2019), Kim et al. (2017).

[57] Brunetti & Bambi (2013), Taylor & Rew (2010), Thompson et al. (2014), Nowrouzi-Kia et al. (2019), Bulgari et al. (2018), Lu et al. (2018), Dack et al. (2013), Papadopoulos et al. (2012), Nikathil et al. (2017).

[58] Fouad et al. (2017) conducted a structured review of violence against healthcare in Syria. The review, however, does not comment on the status of existing literature.

[59] The term 'systematic review' is defined more broadly in this section to include all research that carries out systematic, structured and comprehensive literature reviews, typically using protocol-driven database searches. This includes meta-analyses, scoping reviews and narrative reviews where applicable.

Table 3. Number of systematic reviews by different areas of scoping

Scope defined by...	Number of systematic reviews	Specific criteria for systematic review
...perpetrator of violence	18	Violence carried out by HHCW (non-specific) (2), nurses (5), physicians (1), patients (non-specific) (2), patients (psychiatric) (7)
...target of violence	26	Violence targeting HCW (non-specific) (8), nurses (13), emergency medical staff (ems) (3), physicians (1), medical students (1)
...type of violence	19	Types of violence including: aggression (2), disruptive behaviour/verbal abuse (2), bullying/incivility/lateral violence/harassment (7), upwards violence (1), discrimination (1), aggression (1), cyber (2), labour strikes (1)
...location of violence	20	Locations of violence emergency departments (6), psychiatric setting (9), obstetrics (1), China (1), Spain (1),
...type of research	25	Research on characteristics (6), prevalence (13), antecedents (12), causes (2)

Note: Individual systematic reviews may be constrained by two or more criteria.

Comparing the results in Table 3 to the categories of perpetrators, targets, locations and types of violence outlined in Section 2.2, there are a number of areas where there appear to be no existing systematic reviews. These areas include physical violence, sexual violence, structural forms of violence, violence carried out by affiliated or unaffiliated third parties (including friends, families, unaffiliated individuals, members of non-state groups, state representatives), and violence carried out against patients, caregivers (e.g. social care providers, home service providers), healthcare facilities and healthcare logistics.

There is only one systematic review of the nature of violence against healthcare in conflict, post-conflict and fragile environments

The literature review identified only one systematic review (in this instance, a structured narrative review) that focuses on the nature of violence against healthcare in conflict, post-conflict and fragile environments. This review by Fouad et al. (2017) provides a clear insight into the nature of violence against healthcare in Syria, although it focuses on understanding the extent of the violence as opposed to being a critique of the existing evidence base.

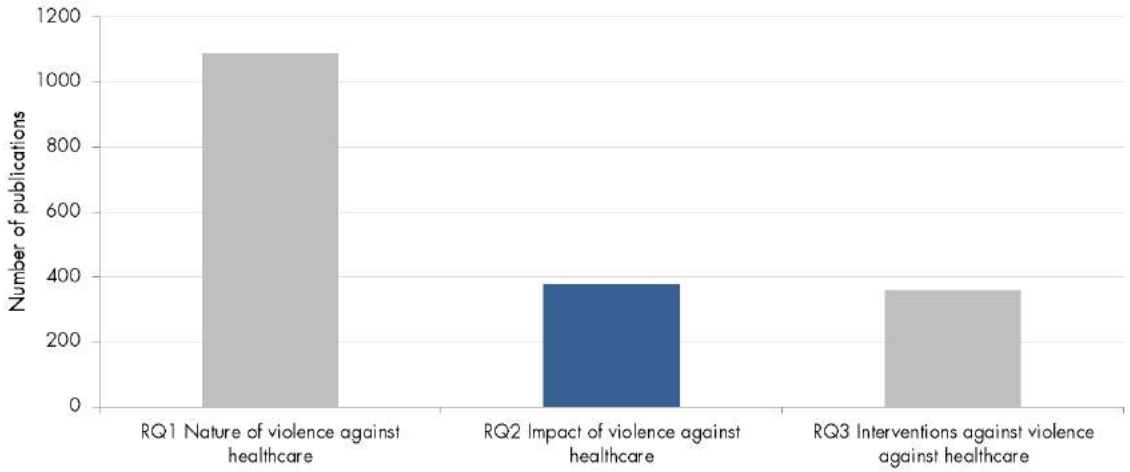
2.4. Evidence on the impact of violence against healthcare (RQ2)

This section focuses specifically on literature that addresses the impact of violence in some form, including individual and collective impact on delivery and access to healthcare.

Around a quarter of publications study the impact of violence against healthcare

Around a quarter of publications (26 per cent) study the impact of violence. This is less than half the number of publications that study the nature of violence (RQ1), and similar to the number of publications that study interventions against violence (RQ3). This proportion is slightly higher for literature specifically relating to conflict, post-conflict and fragile environments, with just under half of those sources (48 per cent) examining the impacts of violence against healthcare.

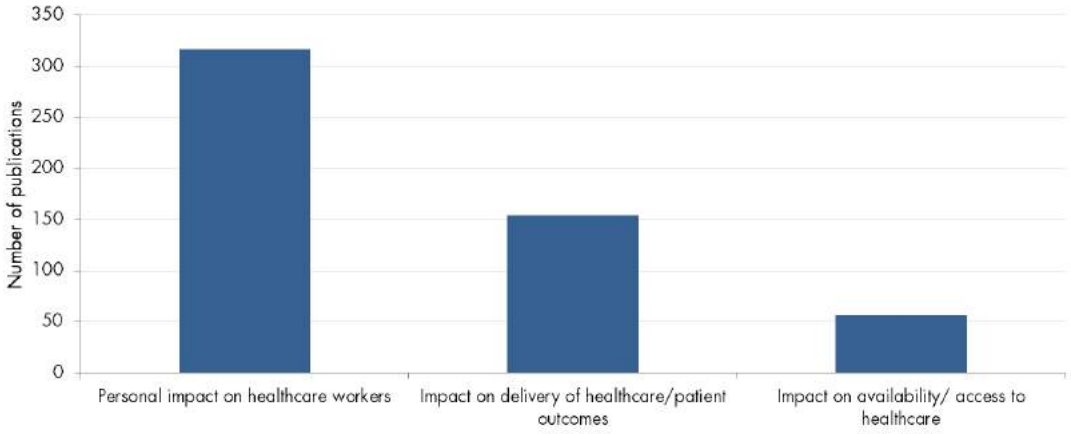
Figure 32. Number of publications by research question (RQ2 highlighted)



Most publications study the personal impact of violence on healthcare workers

Figure 33 categorises publications relating to RQ2 into three thematic areas: personal impact on healthcare workers, impact on ability to deliver healthcare/patient outcomes, and impact on availability and access to healthcare. The majority of publications that study the impact of violence focus on the personal impact of violence on healthcare workers (82 per cent), including, for example, psychological distress, job satisfaction, sense of safety at work, burnout rates, etc. Fewer studies – although still over one third – assess the effects of violence on the delivery of healthcare and on patient outcomes (39 per cent), including, for example, decreases in quality of care and increases in the risk of medical errors. Fewer studies still (14 per cent) consider the impact of violence on the availability of and access to healthcare for patients, which includes the impact of structural violence as well as the reduced availability of healthcare services during labour strikes.

Figure 33. Number of publications by theme of analysis (RQ2 only)



Research on impact in conflict, post-conflict and fragile environments focuses primarily on the impact on healthcare infrastructure and healthcare workers

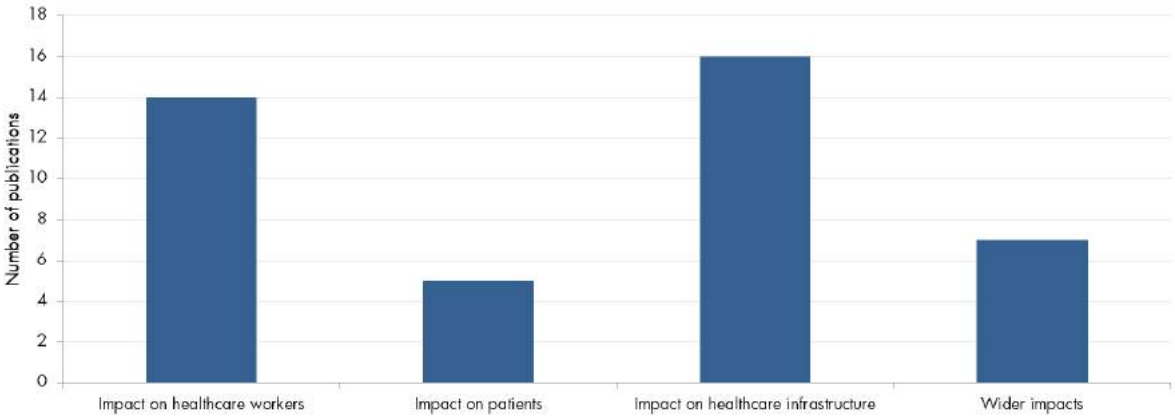
Figure 34 provides a breakdown of available literature on the impact of violence against healthcare in conflict, post-conflict and fragile environments. Mirroring the overall evidence base, a comparatively high number of studies focus on the impact of violence on healthcare workers. This includes, for example, studies of the experiences of healthcare workers in conflict and post-conflict Uganda,[60] and the impact of conflict on ambulance drivers in Kashmir.[61] A comparatively high number of studies focus on the impact of violence on the overall healthcare infrastructure. This includes factors such as damage to healthcare facilities, reduced access to medication and supplies, reduced finances of health facilities, and overall impact on the functioning of individual facilities and wider healthcare systems. Examples of research in this area include the flight of white collar healthcare workers due to civil conflict in Turkey,[62] the impact of conflict on the workload and finances of a hospital in Lebanon,[63] and the impact of conflict on the healthcare system in the Ivory Coast.[64]

Figure 34 indicates that fewer studies focus directly on the impact of violence against healthcare on patients, such as lower quality of care or worsened healthcare outcomes. This information, however, is often implicit in the analysis, as a deterioration of healthcare infrastructure and conditions for healthcare workers will likely lead to lower standards of healthcare provision for patients. A comparatively low number of sources consider the wider impacts of violence against healthcare, including second- and third-order impacts of violence and impacts on the wider population. Existing studies in this area tend to describe the impact of violence on wider health indicators, such as the impact of violence on polio vaccination programmes in Afghanistan and Pakistan,[65] but do not provide

[60] Namakula & Witter (2014).
[61] Dhar et al. (2012).
[62] Kibrisa & Metternich (2016).
[63] Hadary et al. (2009).
[64] Tiembré et al. (2011).
[65] ICRC (2011a).

more complex and comprehensive analyses that examine in more detail the wider impacts of violence against healthcare.

Figure 34. Number of publications by type of impact (RQ2 only; conflict, post-conflict and fragile environments only)



Box 7. Summary of findings from a systematic review of the impact of violence against healthcare in conflict areas

Afzal & Jafar (2019) conducted a systematic review of literature on the impact of violence against healthcare in conflict areas. They found 15 categories of impact: 1) suspension, closure and relocation of facilities, 2) loss of healthcare workers, 3) lack of essential materials, 4) increased care demands, 5) reduced functioning capacity of facilities, 6) changes in practices of health workers/facilities, 7) consequences from the different forms of administrative and physical obstruction, 8) rates of chronic diseases, 9) outbreaks of vaccine-preventable diseases, 10) change in health-seeking behaviours, 11) mental health deterioration, 12) loss of transport, 13) disruptions to medical education, 14) fear of speaking out, and 15) an underestimation of the full extent of impacts.

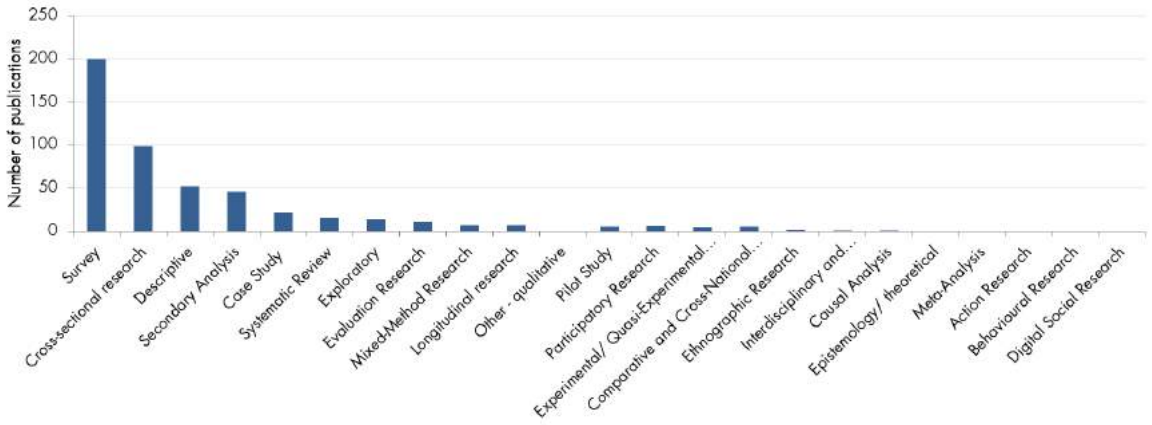
Although analysis of the impact of violence against healthcare in conflict areas is available in the literature, the authors identify a number of significant limitations in the existing evidence base. Few studies examine the impact of violence as the primary focus of research; instead, information is usually embedded within literature that reports attacks on healthcare or describes the wider impact of conflict.[66] Research is also hindered by limitations in data, including incomplete data, inconsistent approaches to data collection, and a lack of systematic approaches to data collection. There are, however, no recommendations in the literature for improving data collection.[67] Research on impact rarely distinguishes between the impact of violence against healthcare and the wider impacts of conflict, and rarely goes beyond the immediate first-order impacts. There is limited research on the knock-on effects of violence, and on the wider and long-term impact of violence against healthcare in conflict areas.[68]

[66] Afzal & Jafar (2019, 55).
[67] Afzal & Jafar (2019, 43, 55).
[68] Afzal & Jafar (2019, 55).

Surveys are the most commonly applied research design when studying the impact of violence

Figure 35 illustrates the number of publications by research design, focusing exclusively on publications that study the impact of violence. Similarly to studies of the nature of violence (RQ1), the most commonly applied research design is surveys (53 per cent), with cross-sectional research (26 per cent), descriptive studies (14 per cent) and secondary analysis (12 per cent) also comparatively common. Also mirroring the situation for RQ1, other types of research design such as longitudinal research (2 per cent) are comparatively less common.

Figure 35. Number of publications by research design (RQ2 only)



These results are reflected in the findings of systematic reviews of the impact of violence against healthcare. As noted below, the literature review identified relatively few (3) systematic reviews that focus primarily or exclusively on impact, together with several other (6) reviews that study impact as part of a broader scoped review. Where present, the assessments of the existing literature mirror those presented for RQ1, including poor quality data (including self-reporting of data),[69] homogeneity of research design,[70] emphasis on cross-sectional methods and corresponding lack of longitudinal studies,[71] and a lack of important and sufficiently granular information that would allow for more complex and insightful analysis (such as information on the perpetrators and/or context of violence).[72]

[69] Onwumere et al. (2018), Afzal & Jafar (2019), Kim et al. (2017).

[70] Onwumere et al. (2018).

[71] Onwumere et al. (2018).

[72] Onwumere et al. (2018), Brunetti & Bambi (2013).

There are fewer systematic reviews of the impact of violence, and they are clustered within specific perpetrators, targets, types and locations of violence

Systematic reviews[73] provide useful insights into the literature on the impact of violence against healthcare. The total number of such reviews (15) is much lower than total number of reviews relating to the nature of violence.

The majority of reviews in this area focus on a small number of specific targets of violence, including healthcare workers (non-specific) (3), nurses (4), emergency medical staff (1) and informal caregivers (1). Five reviews focus on specific perpetrators of violence, including healthcare workers (non-specific) (2), patients (2) and nurses (1). Five reviews focus on specific locations of violence, including emergency departments (3) and conflict environments (2). Five reviews focus on types of violence, including bullying/lateral violence/incivility (2) and cyber (1). Only two reviews focus exclusively on the impact of violence, whereas thirteen reviews combine the impact of violence with other considerations, such as interventions and the nature of violence.

Table 4 highlights a number of areas where there are currently no available systematic reviews: perpetrators of violence including affiliated third parties and unaffiliated third parties (friends, families, unaffiliated individuals, members of non-state groups, state representatives); targets of violence including patients, healthcare facilities and healthcare logistics; and types of violence including physical violence, sexual violence and structural forms of violence.

Table 4. Number of systematic reviews of the impact of violence by different areas of scoping

Scope defined by...	Number of systematic reviews	Specific criteria for systematic review
...perpetrator of violence	5	Violence carried out by HCW (non-specific) (2), patients (non-specific) (1), patients (psychiatric) (1), nurses (1)
...target of violence	9	Violence targeting HCW (non-specific) (3), nurses (4), emergency medical staff (EMS) (1), informal caregiver (1)
...type of violence	5	Types of violence including bullying, lateral violence, incivility (3), cyber (1), labour strike (1)
...location of violence	6	Emergency departments (3), conflict-affected environments (2), surgical environment (1)

Note: Individual systematic reviews may be constrained by two or more criteria.

There is only one systematic review of the impact of violence against healthcare in conflict, post-conflict and fragile environments

The literature review identified only one systematic review (in this instance, a scoping review) that focuses on the impact of violence against healthcare in conflict, post-conflict and fragile

[73] The term 'systematic review' is defined more broadly in this section to include all research that carries out systematic, structured and comprehensive literature reviews, typically using protocol-driven database searches. This includes meta-analyses, scoping reviews and narrative reviews where applicable.

environments. This review by Afzal and Jafar (2019) focuses on the wider and long-term impacts of attacks on healthcare in conflict zones, and is described in more detail in Box 7 above.[74]

[74] Afzal & Jafar (2019).

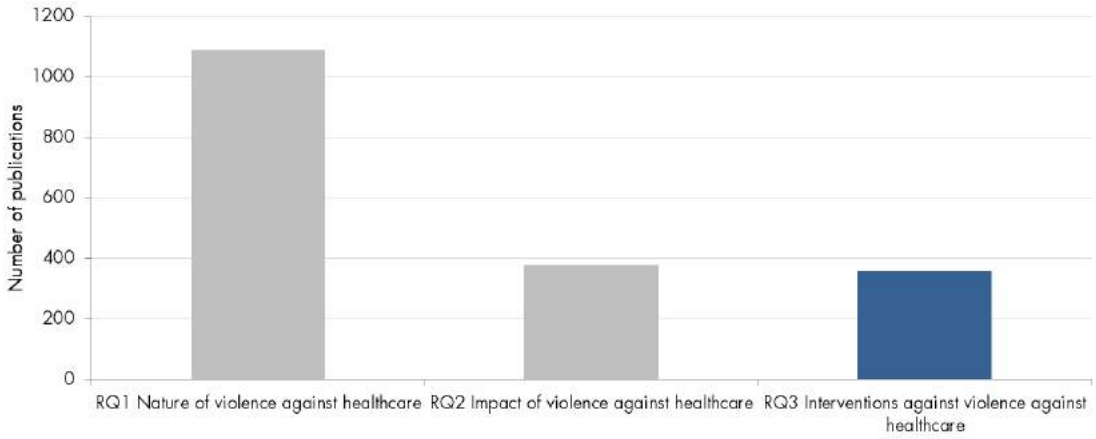
2.5. Evidence on interventions countering violence against healthcare (RQ3)

This section focuses on publications that investigate interventions countering violence against healthcare. This includes publications that study the existing interventions and those that develop and evaluate new interventions, such as tools, training, guidelines and policy.

Around a quarter of publications study interventions countering violence against healthcare

Around one quarter (25 per cent) of all publications identified in this review study interventions that seek to prevent and/or mitigate violence against healthcare. This is fewer than half the number of publications that study the nature of violence (RQ1), and similar to the number of publications that study the impact of violence against healthcare (RQ2).[75] A slightly higher proportion observed within literature specifically relating to conflict, post-conflict and fragile environments, with just under a quarter (37 per cent) of such research examining interventions countering violence against healthcare.

Figure 36. Number of publications by research question (RQ3 highlighted)



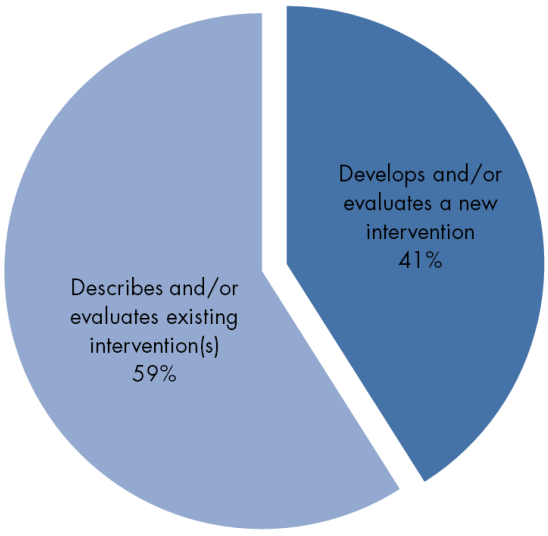
A similar proportion of publications study existing interventions and new interventions

Figure 37 illustrates the proportion of publications that study existing interventions compared to those that study new interventions, and indicates that a relatively similar volume of research exists across these two categories. Just over half (59 per cent) of publications study existing interventions, and just under half (41 per cent) study new interventions. Studies of existing interventions include

[75] Publications on RQ3 are defined as sources that explicitly study interventions against violence as a primary component of their research. This excludes sources that briefly outline the possible implications of their research, typically at the end of the study. This category would exclude, for example, a study that investigates the causes of violence in a clinical setting, and suggests that the results could be used to inform predictive tools for violence. This category would include, however, a study that investigates the causes of violence in a clinical setting, and then designs a new tool that includes incorporates these results.

research that measures the degree to which certain interventions are used, the extent to which they are effective, and the perceptions of patients and healthcare workers regarding their use and effectiveness. Specific examples include an evaluation of a violence reduction policy in an emergency department in Paris,[76] an evaluation of changes in the Spanish penal code regarding violence against health workers,[77] and perceptions of an aggression management training course for nurses.[78] Studies of new interventions include, for example, the development of new tools for measuring and predicting violence, the development of new types of training to support healthcare workers to identify and manage incidences of violence, and the development of new policies and legal frameworks to provide overarching support for the protection of healthcare services. Specific examples include a new tool to predict the risk of violence in community forensic mental healthcare settings,[79] a new interview protocol to predict disruptive behaviour in physicians before they are hired,[80] and the development and trial of a new workplace violence prevention programme in an emergency department in Iran.[81]

Figure 37. Proportion of publications that study existing vs. new interventions (RQ3 only)



[76] Casalino et al. (2015).
[77] Marinas-Sanz et al. (2016).
[78] Heckemann et al. (2016).
[79] van den Brink et al. (2010).
[80] Sandy et al. (2014).
[81] Hemati-Esmaeili et al. (2014).

Box 8. Summary of findings from a scoping review of workplace violence interventions

Morphet et al. (2018) conducted a scoping review to examine the evidence behind existing prevention and management interventions for workplace violence. The review identified 20 studies of relevant interventions, which included environmental risk management techniques (such as increasing visibility in hospital facilities, reducing access to weapons, and the use of safe assessment rooms), consumer risk assessments (including tools to predict violence based on customer questions and the use of breathalysers), staff education programmes (including training on identifying risk, de-escalation techniques, and self-defence training), and techniques for managing violent incidents (including aggression management teams and post-incident support). The authors noted that some interventions, such as risk assessments, staff education and aggression management teams, are supported by evidence in the literature. Other interventions, however, have no supporting evidence in the literature, including widely used techniques such as zero tolerance policies, incident reports and duress alarms.[82] There are also methodological limitations in existing research, including the concurrent evaluation of multiple simultaneous interventions, which makes it difficult to attribute outcomes to individual interventions.[83]

Box 9. Summary of findings from a systematic review of risk assessment tools for psychiatric patients in China

Zhou et al. (2016) reviewed existing evidence on risk assessment tools for predicting violence and aggression in psychiatric patients in China. The review identified 30 studies, six of which described tools for predicting aggression, and 24 of which described tools for predicting violence. Studies were only included if conducted in mainland China. A total of 15 different tools were identified, seven of which were originally developed in Western countries, and eight of which were developed in China. Tools generally scored relatively high for reliability, but were almost all assessed as either poor or moderate for predicting instances of violence. Tools developed in Western countries were less effective when applied to the Chinese context, with the authors concluding that there is little evidence to support the use of Western-developed violence risk assessment instruments in China.

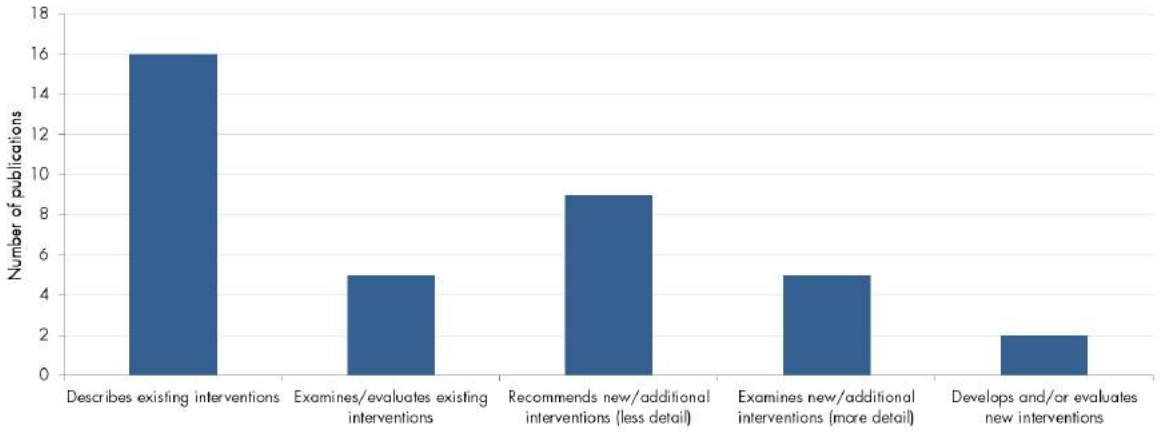
Research in conflict, post-conflict and fragile environments focuses primarily on existing interventions

Figure 38 presents a more granular breakdown of existing publications on interventions, focusing exclusively on those relating to conflict, post-conflict and fragile environments. Most publications (53 per cent) describe existing or previous interventions, such as measures taken to protect hospitals from attack,[84] or provide clarification and guidance on existing international humanitarian law.[85] Fewer studies provide more detailed examinations or evaluations of existing or previous interventions. These reports tend to provide narrative descriptions of perceived advantages and disadvantages of interventions as opposed to more detailed evaluations, although there are

[82] Morphet et al. (2018, 621, 630).
[83] Morphet et al. (2018, 629).
[84] See, for example, Bar-El et al. (2009).
[85] See, for example, ICRC (2015b).

exceptions.[86] New or additional interventions are presented primarily as recommendations towards the end of publications. These recommendations tend to be relatively brief and are not examined in detail. Fewer studies describe new or additional interventions in more detail, and most sources in this category are guidance documents produced by the ICRC on implementing more effective procedures to protect healthcare workers in conflict areas.[87] Only two studies seek to develop and/or evaluate new interventions: one examines tele-education for training civilian physicians in Iraq,[88] and the other looks at rebuilding health systems in post-conflict environments.[89]

Figure 38. Number of publications on interventions by type of study (RQ3 only; conflict, post-conflict and fragile environments only)

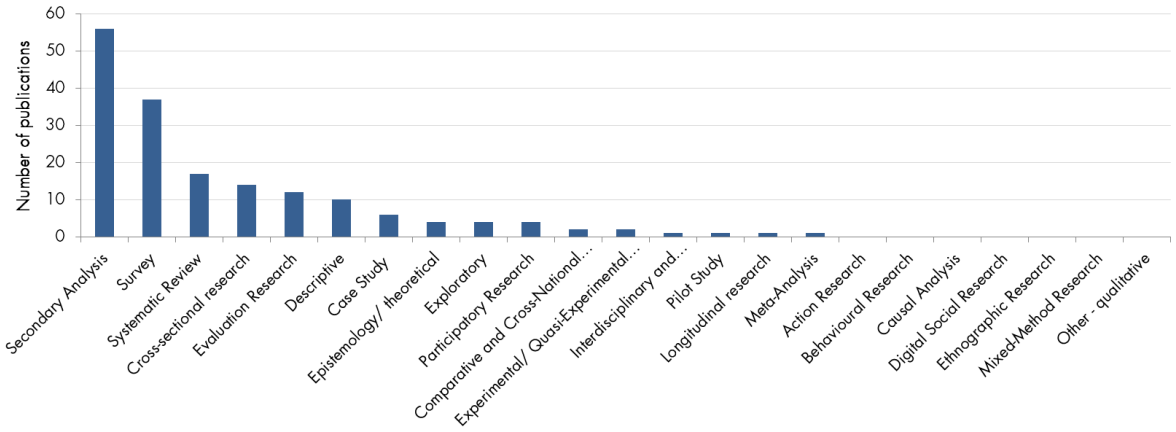


[86] See, for example, Balalian et al. (2014).
[87] See, for example, ICRC (2015c).
[88] Donaldson et al. (2011).
[89] Kruk et al. (2010).

Studies of existing interventions primarily use secondary data analysis and survey research designs

Figure 39 outlines the research designs used to investigate existing interventions. The most common form of design is secondary analysis (34 per cent), which includes literature review (both non-systematic and systematic), document review and analysis of secondary datasets. Surveys (23 per cent) are also comparatively common, although used much less frequently than for studies of the nature (RQ1) or impact (RQ2) of violence. Systematic reviews (10 per cent) and cross-sectional studies (9 per cent) are also used. Other research designs are comparatively less common or do not feature at all, including experimental/quasi-experimental studies (2, 1 per cent) and longitudinal studies (1, <1 per cent).

Figure 39. Publications on existing interventions by research design

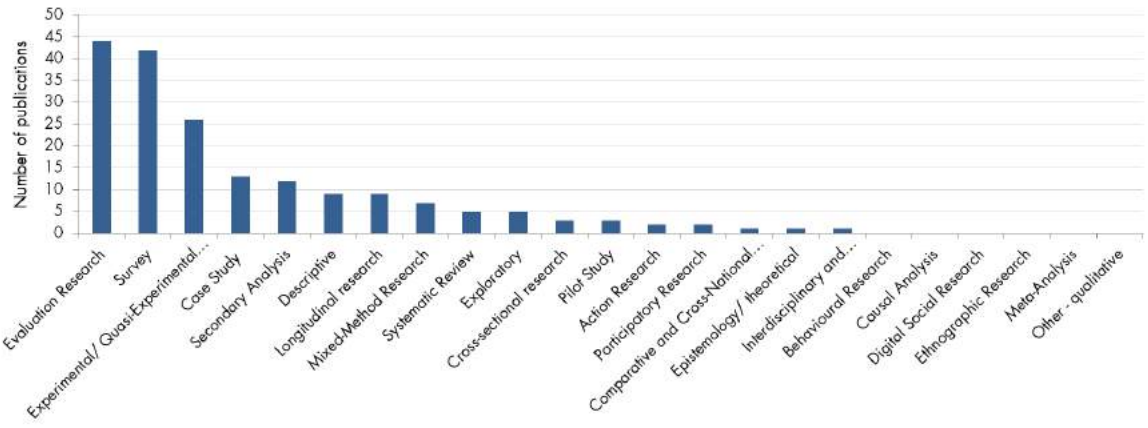


Studies of new interventions primarily use evaluation, survey and experimental/quasi-experimental research approaches

Publications on new interventions most commonly apply evaluation approaches (18 per cent),[90] survey designs (18 per cent) and experimental/quasi-experimental designs (12 per cent). A number of research designs are used to study new interventions that feature comparatively less frequently in other areas of research, including longitudinal research (4 per cent) and pilot studies (1 per cent). Research designs including secondary data analysis (5 per cent) and cross-sectional research (1 per cent) feature less frequently when compared to publications on existing interventions.

[90] Note that, as elsewhere in the study, the data mapping applied to research designs is non-exclusive, meaning each source may be tagged to one or more types of research. Evaluations may use a number of study designs, as detailed in Figure 39, including surveys, experimental/quasi-experimental designs and case study analysis.

Figure 40. Publications on new interventions by research design

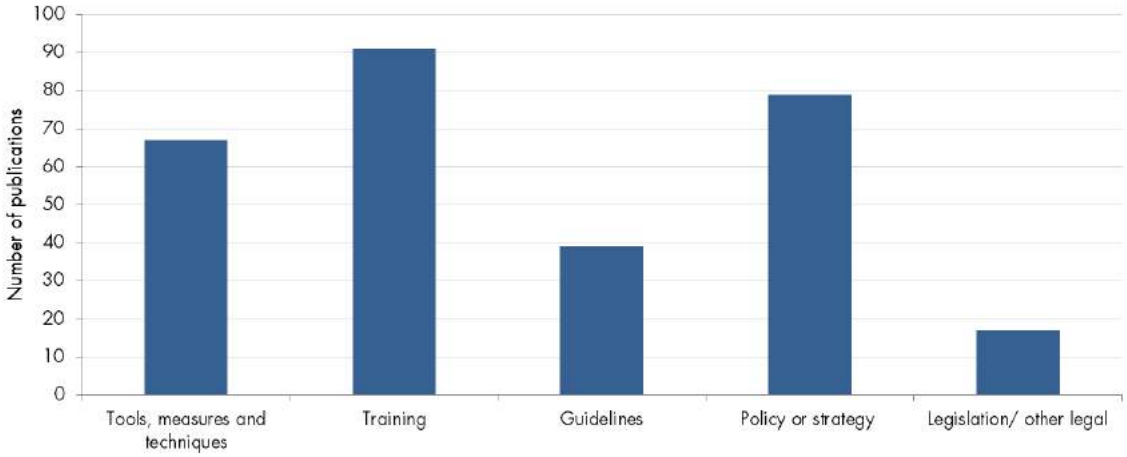


Studies of existing interventions focus most frequently on training, policy, and tools, measures and techniques

Figure 41 indicates that studies of existing interventions focus on a range of different types of intervention, including training, policies and strategies, and tools, measures and techniques for managing violence against healthcare. This includes studies that evaluate existing and pilot interventions, such as violence management training for medical staff,[91] governance policies in China,[92] security responses to violence in Australian hospital emergency departments,[93] reporting mechanisms for violence against nurses,[94] and risk assessment tools for predicting violence in psychiatric settings.[95] Guidelines are comparatively less common, as are studies of legislation and/or other legal aspects of managing violence.

[91] Schwartz & Bjorklund (2019).
[92] Zhang & Feng (2017).
[93] Mitra et al. (2018).
[94] Hogarth et al. (2015).
[95] Langton et al. (2009).

Figure 41. Type of intervention (studies of existing interventions only)

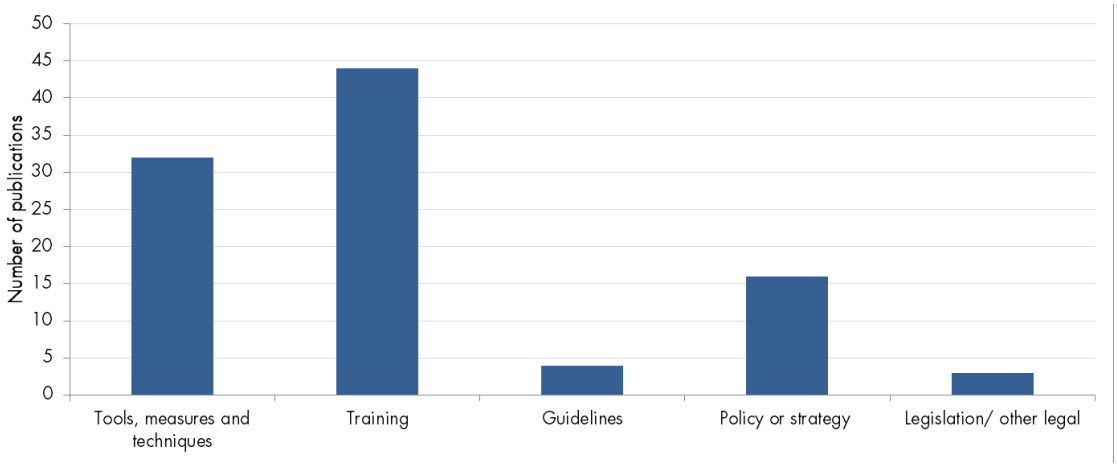


Studies of new interventions focus most frequently on training and tools, measures and techniques

Studies of new interventions focus primarily on the development, implementation and evaluation of either training and/or new tools, measures and techniques for managing violence. This includes, for example, the development of new aggression management and violence prevention training for nurses,[96] the trial and evaluation of de-escalation techniques for healthcare providers in Karachi,[97] the development of new tools for predicting violence in patients,[98] and the adaptation of existing tools for use in different settings, such as Turkey[99] and China.[100] Fewer studies consider the development of new policies or strategies, or the development of new guidelines and legal frameworks.

[96] Binil et al. (2017).
[97] Baig et al. (2018).
[98] Wilkes et al. (2010).
[99] Moursel et al. (2019).
[100] Pien et al. (2019).

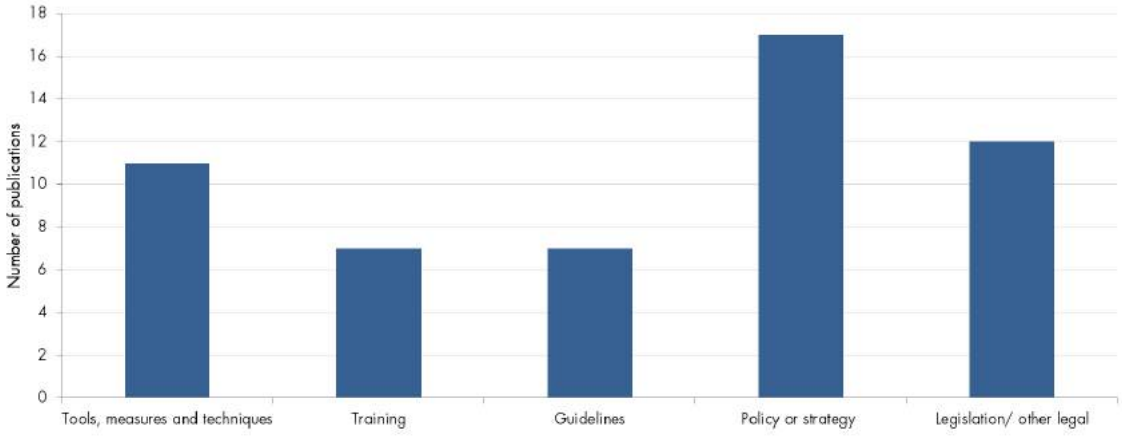
Figure 42. Number of publications by type of intervention (studies of new interventions only)



Studies in conflict, post-conflict and fragile environments focus more on policy/strategy and legislation

Figure 43 provides a breakdown of the type of interventions studied in the literature relating to conflict, post-conflict and fragile environments. In contrast with the overall evidence base, there is a stronger focus on policy/strategy and the legislative aspects of violence against healthcare, and comparatively fewer studies that consider training interventions. A number of studies (10) consider tools, measures and techniques to combat violence against healthcare, although these range from individual protection measures used by healthcare workers to protect themselves in conflict environments[101] to recommendations for improved data collection mechanisms to support more evidence-based initiatives.[102]

Figure 43. Number of publications by intervention type (conflict, post-conflict and fragile environments only)



[101] Namakula & Witter (2014).

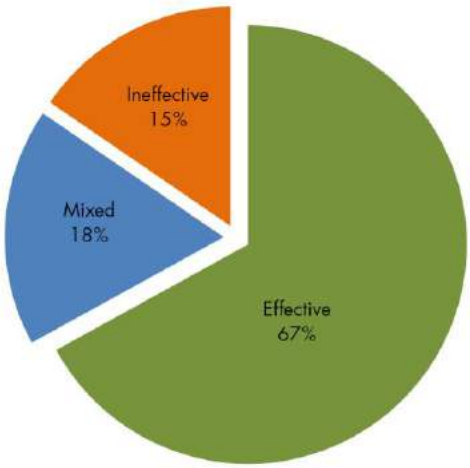
[102] ICRC (2013).

Where specified, studies consider interventions to be effective to some degree

Figure 44 illustrates the proportion of studies that consider evaluations to have been effective, mixed or ineffective in managing violence. This is based on self-reported measures of effectiveness, and refers only to studies where this information can be inferred with a reasonable level of confidence from the source itself. Figure 44 indicates that around two thirds of publications (67 per cent) consider their interventions to be effective. Fewer studies consider their interventions to be either ineffective (15 per cent) or neither effective nor ineffective (18 per cent). Similar proportions are observed for studies of existing interventions and studies of new interventions.

There may be a number of reasons behind this observation, such as biased qualitative interpretation of statistical results, and selection bias for successful and significant results in peer-reviewed journals. Interestingly, these findings contrast in part with the assessments provided by existing systematic literature reviews and meta-analyses on the effectiveness and overall quality of the evidence base on existing interventions. Some reviews identify interventions that are considered effective, such as some aggression management training interventions in psychiatric hospitals,[103] and some prevention and management tools for occupational violence in healthcare settings.[104] Other reviews, however, find little or no evidence to support the effectiveness of certain interventions, for example citing a lack of evidence on the effectiveness of interventions for emergency services personnel,[105] and a lack of evidence on effective preventative programmes for countering workplace violence in China.[106]

Figure 44. Publications according to self-reported success of intervention



[103] Livingston et al. (2010).
[104] Morphet et al. (2018).
[105] Maguire et al. (2017).
[106] Hall et al. (2018).

Systematic reviews of interventions focus on violence carried out by patients, targeted towards healthcare workers, and carried out in emergency departments and psychiatric settings

A total of 28 systematic reviews[107] were identified that study existing literature on interventions countering violence against healthcare. Reviews focus primarily on violence carried out by patients (8) and targeted towards healthcare workers (13), and located in either emergency departments (5) or psychiatric settings (7). Few studies focus on specific types of violence, with lateral violence (1) and cyber-enabled violence (1) the only available examples. Systematic reviews in this area explore a number of different types of intervention, including training (3), risk assessment tools (3), personal protection measures (1), patient-involved interventions (1), smoke-free hospitals (1),[108] and secondary and tertiary interventions (1).

As noted above, existing systematic reviews and meta-analyses provide mixed findings regarding the effectiveness of existing interventions. Although some reviews identify effective interventions supported by evidence in the literature,[109] most highlight a lack of effective interventions and limited available evidence. This includes interventions in emergency medical settings,[110] psychiatric settings,[111] and general hospital settings.[112] All the identified systematic reviews focus on interventions in non-conflict environments; no reviews were found that identify and/or assess the effectiveness of interventions in conflict environments.

[107] The term 'systematic review' is defined more broadly in this section to include all research that carries out systematic, structured and comprehensive literature reviews, typically using protocol-driven database searches. This includes meta-analyses, scoping reviews and narrative reviews where applicable.

[108] This review studied literature on the transition to smoke-free psychiatric hospitals and the associated impact on patient aggression.

[109] See, for example, Livingston et al. (2010), Ramesh et al. (2018), Heckemann et al. (2015), Ghosh et al. (2019), Tishler et al. (2013), Morphet et al. (2018).

[110] Taylor & Rew (2010), Maguire et al. (2017), Cabilan & Johnston (2019), Ramacciati et al. (2018), Anderson et al. (2010), Ramacciati et al. (2016).

[111] Neven et al. (2019), Zhou et al. (2016), Eidhammer et al. (2014), Hallett et al. (2014).

[112] Hall et al. (2018), Perkins et al. (2017), Price et al. (2015).

Table 5. Number of systematic reviews of interventions against violence by different areas of scoping

Scope defined by...	Number of systematic reviews	Specific criteria for systematic review
...perpetrator of violence	11	Violence carried out by HCW (non-specific) (1), nurses (1), physicians (1), patients (non-specific) (4), patients (psychiatric) (4)
...target of violence	13	Violence targeting HCW (non-specific) (5), nurses (6), emergency medical staff (EMS) (1), physician (1)
...type of violence	3	Types of violence including lateral violence (1), cyber (2)
...location of violence	14	Locations of violence include emergency departments (5), psychiatric setting (7), acute care setting (1), conflict areas (1)
...type of intervention	14	Specific types of intervention include training (3), risk assessment tools (3), personal protection measures (1), patient-involved interventions (1), aggression management techniques (2), smoke-free hospitals (1), coping strategies (1), health research capacity building (1), secondary and tertiary interventions (general) (1)

Note: Individual systematic reviews may be constrained by two or more criteria.

A comparison of the results in Table 5 with the categories outlined in Section 2.2 highlights areas where there are currently no systematic reviews in the literature: perpetrators of violence including by affiliated third parties and unaffiliated third parties (friends, families, unaffiliated individuals, members of non-state groups, state representatives); targets of violence including patients, healthcare facilities and healthcare logistics; types of violence including physical violence, sexual violence and structural forms of violence; and types of intervention including guidelines, policies, strategies and legislation/legal interventions.

There is only one systematic review of interventions countering violence against healthcare in conflict, post-conflict and fragile environments

The literature review identified only one systematic review (in this instance, a structured narrative review) that focuses on interventions against healthcare in conflict, post-conflict and fragile environments. This review by Bowsher et al. (2019) focuses on health research capacity building in low- and middle-income countries, and draws on evidence from conflict, post-conflict and low-income environments. The research, however, found only three relevant sources relating to post-conflict environments, and no relevant sources covering conflict environments, indicating that there has been very limited research in this area.[113]

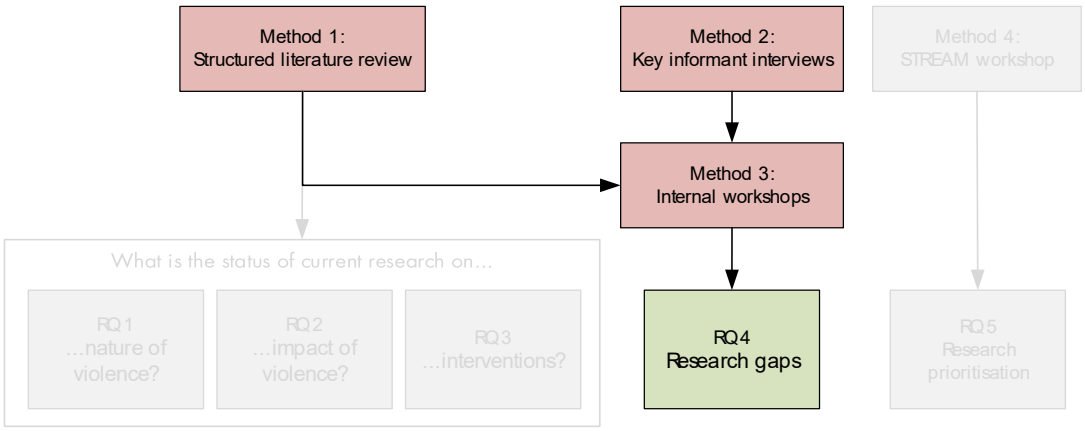
[113] Bowsher et al. (2019, 7).

3. Identification of research gaps

An 'evidence gap' may be defined as a topic or area for which missing or insufficient information limits the ability to reach a conclusion. The existence of evidence gaps can limit the ability of decision makers – including leaders, policymakers, and practitioners – to make informed choices on important real-world matters. This can lead to unsuitable or sub-optimal outcomes, as the absence of trustworthy and relevant information may force decision makers to use less reliable sources of information as the basis of their choices. It is therefore important to identify, prioritise and – where possible – rectify research gaps in order to support more informed decision making in the future.

This chapter focuses on the identification of research gaps in the existing evidence base. As described in Chapter 1 and presented in Figure 45 below, research gaps were identified and refined through a series of internal workshops that combined findings from the structured literature review (Chapter 2) with insights gathered from 14 key informant interviews (with 15 interviewees) with stakeholders from academia, government and NGOs.

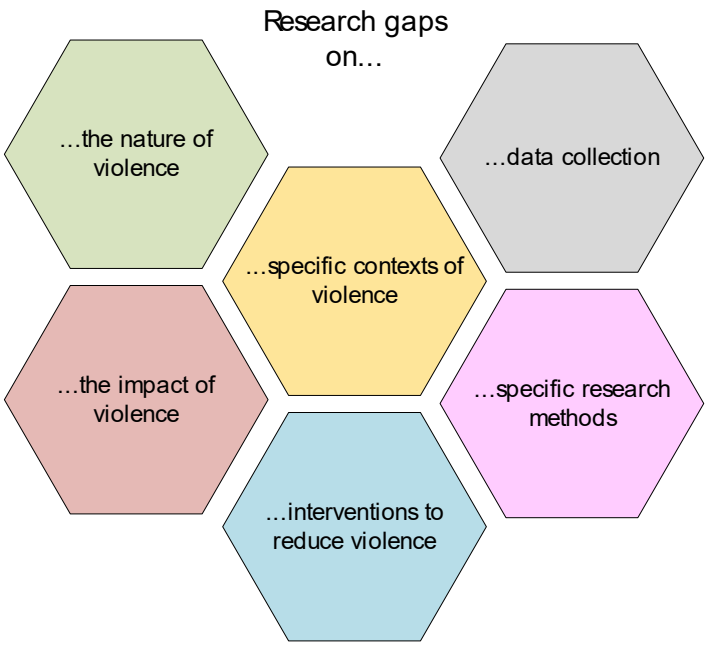
Figure 45. Research method and research questions for Chapter 3



This chapter identifies 23 research gaps, which have been categorised into six over-arching categories: 1) research gaps on the nature of violence against healthcare; 2) research gaps on the impacts of violence against healthcare; 3) research gaps on interventions to reduce, prevent and mitigate violence against healthcare; 4) research gaps in specific contexts of violence; 5) research gaps in data collection; and 6) research gaps in research methods. Each research gap, as presented below, includes a summary, description, implications, and areas for future research, as well as ranking for impact, feasibility of implementation, and most relevant stakeholder. All rankings are out of 23 (corresponding to 23 research gaps), with lower numbers corresponding to higher ranks (i.e. higher

impact and lower barriers to implementation). This ranking is based on the research prioritisation workshop and scores, as described in more detail in Chapter 4.

Figure 46. Six clusters of research gaps

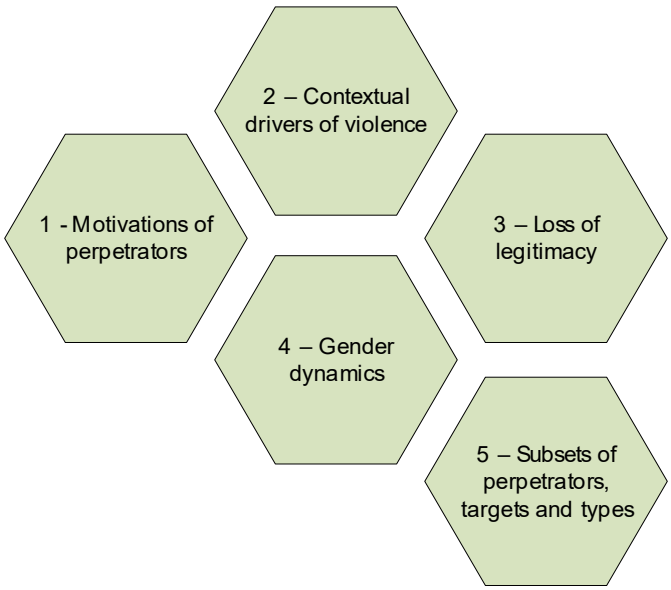


3.1. Research gaps on the nature of violence against healthcare

Several research gaps were identified with regard to the nature of violence against healthcare: 1) the motivations of perpetrators of violence; 2) the contextual drivers of violence; 3) the loss of legitimacy of service for healthcare workers in conflict areas; 4) the gender dynamics of violence; and 5) specific subsets of perpetrators, targets and types of violence.

Research gaps in this area point to a lack of understanding of the underlying dynamics (i.e. the *why?*) of violence against healthcare. Why do people carry out violence against healthcare? How is this influenced by local context? Why does it occur in conflict areas? What is the role of gender? And how does this differ between different types of perpetrators, targets and types of violence? Gaps in existing research limit a comprehensive understanding of the nature of violence against healthcare, which in turn limits the development of interventions that are effective in different contexts and for different types of violence.

Figure 47. Research gaps on the nature of violence



Research Gap #1: Motivations of perpetrators of violence against healthcare

Summary of research gap:					
Existing research on the origins of violence against healthcare focuses primarily on antecedents[114] or predictors of violence. The motivations of perpetrators of violence are seemingly less well understood.					
Description of research gap:					
Interviewees[115] highlighted a lower level of understanding as to 'why' perpetrators commit violence against healthcare, including the underlying factors or motives (e.g. psychosocial, situational), how they interact, and how this differs between different perpetrators of violence in different contexts (e.g. actors in conflict and non-conflict zones) and different types of actors (e.g. state or non-state actors). This is also reflected in the review of the evidence base, with Figure 29 in Chapter 2 illustrating that the majority of sources that study the nature of violence focus on either the prevalence of violence and/or antecedents of violence, with relatively fewer sources considering the causes of violence against healthcare.					
Implications of research gap:					
An absence of research on the motivations behind violence against healthcare not only constitutes a lack of understanding of the topic, but may also mean that considerations of motivations of violence are more difficult to include in policies, tools and ways of working that attempt to pre-empt and protect victims of violence in healthcare settings. This refers not only to short-term measures where there is an immediate risk of violence, but also to long-term measures that seek to address the motivations and drivers that underpin ongoing or recurrent instances of violence. A nuanced understanding of motivations may enable more effective and tailored interventions.					
Areas for future research:					
Future research may seek to identify and understand the motivations behind violence against healthcare. This may include research on the context-specific motivations of violence, such as targeting choices or *modus operandi*, as well as the motivations of specific types of perpetrator, such as individual patients, friends/family and state/non-state actors. This research may be case-specific or seek to generalise across similar contexts, and may draw on existing research in other fields of study, including political science and international relations.					
Impact rank:	8	Implementation rank:	22	Most relevant to:	Researchers

(Note: for each research gap, 'impact rank', 'implementation rank' and 'most relevant to' refer to the results from the research prioritisation; see Chapter 4 for more detailed descriptions of methods and scores).

[114] 'Antecedents' of violence refers specifically to indicators of violence that may be observed or measured before an incidence of violence takes place, and which may then be used to predict incidences of violence ahead of time. These antecedents are useful in developing tools that enable healthcare workers to pre-empt incidences of violence and thus take action before they occur.

[115] RAND Europe interviews with interviewees 2, 6 and 9.

Research Gap #2: Contextual drivers of violence against healthcare

Summary of research gap:					
The contextual drivers of violence against healthcare include not only the conditions present in instances of violence against healthcare, but also the contextual factors or dynamics that lead to or precipitate such instances. This may include a wide range of different factors, including local politics, economic factors, social norms and other drivers of violence.					
Description of research gap:					
Violence against healthcare does not occur as an isolated interaction between a perpetrator and victim, but rather within a wider ecosystem of complex contextual factors that may contribute to or in some way influence its occurrence. In conflict environments, for example, violence against healthcare takes place in the midst of a range of conflict dynamics that can drive the politicisation and militarisation of healthcare.[116] Similarly, historical and socio-cultural factors can also lead to the prevention of violence against healthcare due, for example, to the perceived legitimacy of healthcare and strong cultural norms.[117] Whilst the literature review identified a number of sources that examine antecedents of violence (see Figure 29), these focus predominantly on high- and upper-middle-income (92 per cent) and non-conflict (95 per cent) areas, and appear to concentrate primarily on micro-level antecedents and predictors of violence, such as the individual characteristics of perpetrators. There is less research that concentrates on the macro- and meso-level drivers of violence against healthcare, or on contextual drivers in conflict areas and low-income/lower-middle-income countries.					
Implications of research gap:					
An absence of research into contextual drivers not only inhibits a more complex and nuanced understanding of violence against healthcare, but may also inhibit the development of more comprehensive interventions that address the wider causes of violence. Interventions that do not acknowledge the complexity of the violence may not only be less effective, but in some instances may lead to contradictory efforts and unintended effects that are rooted in incomplete or insufficient understandings of the context-specific drivers of violence.[118]					
Areas for future research:					
Research on the contextual drivers of violence against healthcare may focus on identifying drivers within specific instances of violence, or may seek to conceptualise and understand the common contextual drivers that underpin violence against healthcare across multiple contexts. Existing work in this space points to several approaches that could contribute to this inquiry, including complexity analysis.[119] This in turn may lead to a more holistic and comprehensive understanding of violence against healthcare that supports the development of more comprehensive, effective and long-term policy interventions.					
Impact rank:	8	Implementation rank:	12	Most relevant to:	Policymakers

[116] RAND Europe interview with interviewee 8.

[117] RAND Europe interviews with interviewees 1, 4, 7, 8 and 11.

[118] RAND Europe interviews with interviewees 7, 8 and 9.

[119] Salzmann-Erikson & Yifter (2019).

Research Gap #3: Loss of legitimacy of service for healthcare workers in conflict areas

Summary of research gap:					
There is a perceived loss of legitimacy of service impacting the delivery and protection of healthcare in conflict-affected areas. This trend has not been captured or examined extensively in existing literature.					
Description of research gap:					
Legitimacy of service refers to the perception of the legitimacy of humanitarian interventions, in this case, healthcare delivery, and the expectation that all sides will respect international law and not target the provision of healthcare. Healthcare workers appear to be increasingly targeted in conflict zones, and in some instances, healthcare workers no longer identify themselves as members of the medical profession (e.g. by displaying a red cross or MSF logo) as this in itself increases the probability of attack.[120] Interviewees attributed this to loss of legitimacy of service, although they highlighted a lack of research on the precise nature of the phenomenon, the drivers of this change and the ways in which legitimacy of service could be restored such that healthcare workers are not targeted in conflict areas.[121]					
Implications of research gap:					
Humanitarian organisations, including those that deliver healthcare provision, are in some cases adapting their own ways of operating in order to better protect healthcare workers. Examples identified by interviewees include travelling in unmarked vehicles and not wearing marked medical clothing.[122] Whilst this may increase security in the short term, the nature and drivers of this phenomenon are less well understood, which in turn restricts the abilities of aid agencies and government actors to take a more long-term, systematic and upstream approach to restoring legitimacy of service. This places healthcare workers at continued high levels of risk, and reduces the availability and effectiveness of healthcare delivery in conflict environments.					
Areas for future research:					
Research in this area may focus not only on the prevalence of the issue, but also on establishing the drivers and possible mechanisms for restoring legitimacy of service in conflict areas. A greater understanding of the drivers and possible measures to counteract the loss of legitimacy of healthcare workers in conflict environments would support more effective interventions, which in turn may enable healthcare workers to operate more safely in conflict environments without additional security measures. This not only protects the individuals themselves, but also supports the continued delivery of service in environments that may otherwise not receive access to healthcare.					
Impact rank:	11	Implementation rank:	20	Most relevant to:	Practitioners

[120] RAND Europe interview with interviewee 5.

[121] RAND Europe interviews with interviewees 1, 4, 5 and 15.

[122] RAND Europe interview with interviewee 5.

Research Gap #4: Gender dynamics in violence against healthcare

Summary of research gap:					
The role of gender dynamics in violence against healthcare is currently under-researched in the literature.					
Description of research gap:					
The role of gender dynamics in violence against healthcare was cited by interviewees as an important research gap in the existing evidence base. Whilst healthcare is often provided by female medical staff, there is insufficient research on the role of gender and the nature and impact of violence against female healthcare workers.[123] This includes research on whether gender creates incentives to commit violence, whether female healthcare workers are disproportionately targeted by violence, and to what extent perpetrators commit violence against healthcare workers because they are female or because they are healthcare workers. Violence may disproportionately affect female patients by disincentivising women from seeking professional healthcare,[124] and female healthcare workers in conflict areas may be less likely to provide information on violence, leading to biases in data and to research that focuses more on the experiences and perspectives of male healthcare workers.[125] This latter point, however, appears contested amongst stakeholders, suggesting that additional research is required to understand the extent and nature of gender biases in existing data.[126]					
Implications of research gap:					
A lack of focus on the gender dynamics of violence against healthcare limits the degree to which the nature and impact of violence against healthcare can be fully understood. It prevents a more nuanced understanding of the various roles and experiences of violence, in particular for women, which in turn may inhibit the development of more effective interventions that address the challenges faced by women in this domain. Male perspectives may be disproportionately represented in the literature, which may lead to incomplete conclusions that do not adequately reflect the experiences of women, although this requires further research.					
Areas for future research:					
Research on violence against healthcare should seek to address existing gender imbalances and ensure that women are equally represented in the literature. Research on the role of gender in violence against healthcare may seek to discern the similarities and differences in gendered experiences of violence, and identify the degree and ways in which women are disproportionately targeted and impacted. Research in this area may also seek to empirically measure the bias in the research towards male samples. Researchers' recruitment practices should be formulated to incentivise the inclusion of female healthcare workers, whilst taking into account potential cultural sensitivities. Addressing this research gap may lead to more diverse and representative research that enhances the robustness, veracity and nuance of the evidence base.					
Impact rank:	20	Implementation rank:	4	Most relevant to rank:	Practitioners

[123] RAND Europe interviews with interviewees 2, 3, 7 and 11.
[124] RAND Europe interview with interviewee 10.
[125] RAND Europe interview with interviewee 11.
[126] RAND Europe interview with interviewee 15.

Research Gap #5: Specific subsets of perpetrators, targets and types of violence

Summary of research gap:
Lower volumes of research are observed with regard to specific perpetrators, targets and types of violence against healthcare.
Description of research gap:
The literature mapping in Chapter 2 identifies subsets of perpetrators, targets and types of violence. Some areas, such as violence against nurses, feature heavily in the literature, whereas others, such as staff-initiated violence by nurses against patients or violence between healthcare workers and friends/families of patients, feature less commonly in the literature. Lower volumes of research in these areas may reflect lower prevalence and/or lower impact of these types of violence, and it is not expected that all subsets of perpetrators, targets and types of violence should be treated equally in the literature; a lower volume of research in itself does not constitute an important or relevant absence. Nonetheless, based on the analysis conducted in Chapter 2, it is possible to identify a number of areas where there is an empirically lower volume of research, including: • Alternative forms of physical and psychological violence, including theft, looting, blockades, arrests, structural forms of violence • Violence carried out by third parties (affiliated and unaffiliated) • Violence targeting non-human targets, such as facilities and logistics • Violence targeting patients • Violence in non-medical settings
Implications of research gap:
A lower volume of research in these areas does not necessarily mean that additional research is required, nor that it would add significant value to the existing evidence base. However, in areas where a high prevalence or impact of violence is experienced, a lower volume of research may inhibit a full understanding of the nature and impact of violence, and the degree and ways in which this violence may be addressed.
Areas for future research:
Future research should focus on areas that would add value to the existing evidence base and support the development of effective and impactful interventions. Where relevant, additional research into different subsets of perpetrators, targets and types of violence against healthcare would facilitate a greater understanding of the nature and impact of specific types of violence, and may support the development and implementation of tailored interventions. Research in these areas would broaden the range and depth of study in the field of violence against healthcare more generally, which may lead to a more complete and robust evidence base.

Impact rank:	20	Implementation rank:	4	Most relevant to:	Practitioners

Table 6. Summary of research gaps on the nature of violence against healthcare

#	Research gap	Description
1	**Motivations of perpetrators against healthcare**	Existing research on the causes of violence against healthcare focuses primarily on antecedents or predictors of violence. While these considerations are useful in developing tools that enable pre-emptive and preventive strategies, there is a lower level of understanding as to *why* perpetrators commit violence against healthcare. This includes various underlying factors (e.g. psychosocial, situational), how these factors interact with each other, and how they vary in different contexts.
2	**Contextual drivers of violence against healthcare**	Violence against healthcare does not occur as an isolated act but rather takes place within a wider ecosystem of contextual factors. In contrast to micro-level predictors, these meso- and macro-level contextual factors are less well understood in the literature. This refers, for example, to historical and socio-cultural factors, as well as wider conflict dynamics where applicable.
3	**Loss of legitimacy of service for healthcare workers in conflict-affected areas**	Healthcare workers working in conflict-affected areas perceive a loss of legitimacy of service, which is impacting on the delivery and safeguarding of healthcare in conflict-affected environments. This trend has not been examined extensively in the existing literature, and its drivers remain poorly understood.
4	**Gender dynamics in violence against healthcare**	Whilst healthcare is often provided by female healthcare workers, there is an absence of research on the role of gender dynamics in violence against healthcare. This includes whether gender creates certain incentives to commit violence, whether female healthcare workers are targeted more often, and whether the impact of violence against healthcare disproportionately disincentivises women from seeking professional healthcare or working as service providers in certain contexts.
5	**Specific subsets of perpetrators, targets and types of violence against healthcare**	Certain types of violence, victims and perpetrators feature prominently in the literature, such as physical violence against nurses. However, other subsets are less well researched. This includes, for example, alternative forms of physical violence (e.g. theft, looting, blockades, arrests), violence carried out by third parties, and structural forms of violence.

3.2. Research gaps on the impacts of violence against healthcare

Two research gaps were identified with regards to the impacts of violence against healthcare: 1) the wider impacts of violence; and 2) the impacts of security policy on healthcare. These gaps are labelled #6 and #7 respectively.

A lack of understanding of the full scale of impacts of violence against healthcare (#6) poses clear challenges to formulating effective interventions in this space. A limited or narrow understanding of impact may, for example, lead to under-investment in specific prevention or mitigation measures, or conversely, may result in misdirected over-investment in ineffectual interventions.

The evidence base may also benefit from further research specifically on the indirect impacts of security policy and legislation on healthcare (#7). This was highlighted by a number of interviewees as a fundamental tension in existing national and international policy and legislation, with both researchers and practitioners alike expressing uncertainty regarding the potential impact of security policy and legislation on the ability to deliver healthcare services, in particular in conflict areas.

Figure 48. Research gaps on the impacts of violence

Research Gap #6: Wider impacts of violence against healthcare

Summary of research gap:					
Existing research on the impacts of violence against healthcare focuses primarily on immediate and measurable outcomes, such as the impact on healthcare workers and the delivery of healthcare services to patients. There is less research on the wider impacts of violence against healthcare.					
Description of research gap:					
Violence against healthcare is undoubtedly a harmful phenomenon. Existing research focuses primarily on its immediate and measurable outcomes,[127] and in particular the interpersonal impact of violence and the immediate impact on the delivery of healthcare, as described in Figure 33 in Chapter 2. Whilst these areas provide some insight into the negative impact of violence against healthcare, they do not capture its full extent. There is less evidence on the broader impacts of violence beyond the immediate outcomes of attacks, including second- and third-order impacts that do not occur as a direct outcome of violence, but nonetheless occur as a result of violence against healthcare. This also refers to wider societal-level impacts, such as overall decreases in well-being or prolongation of conflicts due to increased levels of distrust between opposing sides.[128] Specifically in conflict areas, the absence of research on wider impacts is also illustrated in Figure 34, and described by Afzal & Jafar (2019).					
Implications of research gap:					
A lack of research into the wider impacts of violence limits existing understanding of the overall impact of violence against healthcare. This may lead to under-investment in measures to prevent or mitigate violence against healthcare, and may also inhibit the development of interventions that seek to address its wider impact. While existing analysis has supported advocacy on violence against healthcare, interviewees highlighted the need for more sophisticated analysis in order to move beyond advocacy.[129]					
Areas for future research:					
Filling this research gap may require analysis of the secondary and tertiary impacts of violence. These second- and third-order effects could extend beyond healthcare, with relevance to political, economic, social and legal disciplines. This may include additional forms of data collection and analysis, as well as the development of frameworks and methods for conceptualising and measuring more indirect impacts, such as the structural impacts of violence. Further research in this area may support a more complete appreciation of the full cost of violence against healthcare. This may not only help with global advocacy, but also support countermeasures with an appreciation for the full impact of violence against healthcare.					
Impact rank:	3	Implementation rank:	12	Most relevant to:	Policymakers

[127] RAND Europe interviews with interviewees 1, 4, 6 and 8.
[128] RAND Europe interviews with interviewees 1, 4, 6 and 8.
[129] RAND Europe interviews with interviewees 3 and 10.

Research Gap #7: Indirect impacts of security policies on healthcare

Summary of research gap:					
There is little research on the indirect impact of national and international security policies and legislation on healthcare delivery.[130]					
Description of research gap:					
Security policies and security legislation are an important part of a state's security provision. Such policies, however, may impact on the delivery and uptake of healthcare services by placing healthcare workers at risk of prosecution if they treat certain subsets of patients.[131] Counterterrorism policies were highlighted as one such example, with healthcare workers in certain contexts liable to be prosecuted if they treat terror suspects.[132] This not only challenges medical neutrality, but may also lead to additional psychological pressures caused by the ethical and moral dilemmas imposed on healthcare workers by the criminalisation of certain activities. The degree to which these policies impact on the uptake of healthcare is unclear, but certain populations may be excluding themselves from healthcare services.					
Implications of research gap:					
A lack of understanding of the indirect impacts of security policies and legislation may lead to appraisals that do not fully capture their benefit or cost to society. A lack of research may also inhibit adaptations to existing or future security policies and legislation that provide better protection to healthcare workers. It may also reduce the likelihood of effective countermeasures being introduced that support healthcare workers in managing ethical and moral dilemmas.					
Areas for future research:					
Future research in this area may seek to conceptualise and measure the impact of security policies and legislation on the provision of healthcare, and identify additional steps that may be taken to protect healthcare workers whilst still retaining their effectiveness. Studies may take a qualitative angle and seek to understand the ways in which different security policies affect the provision of healthcare, or a quantitative angle that estimates the negative externality of given security policies and legislation. Investigating the wider effects of security policies may contribute to our existing understanding of the different forms of violence faced by healthcare workers, and may support the development of effective measures that provide support to healthcare workers and patients who are disproportionately affected by security policies and legislation.					
Impact rank:	15	Implementation rank:	7	Most relevant to:	Policymakers

[130] Note that this research gap does not refer to the securitisation of healthcare, but rather the impact of security policies and laws on healthcare.

[131] RAND Europe interviews with interviewees 2, 3, 6 and 15.

[132] RAND Europe interviews with interviewees 2, 3, 6, 15.

Table 7. Summary of research gaps on the impacts of violence against healthcare

#	Research gap	Description
6	**Wider impacts of violence against healthcare**	Though violence against healthcare is suspected to have wide-ranging impacts, these are not well understood beyond the immediate and measurable outcomes of violence on its victims. Existing research appears to focus on the interpersonal impacts of violence and the immediate impact on healthcare delivery, while the second- and third-order impacts, for example on the wider economic cost of violence or the prolongation of conflict, are significantly less well understood.
7	**Indirect impacts of security policies on healthcare**	National-level security policies are known to have indirect but potentially detrimental impacts on healthcare delivery. These impacts, including the criminalisation of healthcare in the context of counterterrorism,[133] remain under-researched. Such policies may, however, have profound impacts on healthcare, including by exerting psychological pressures on healthcare workers and challenging medical neutrality.

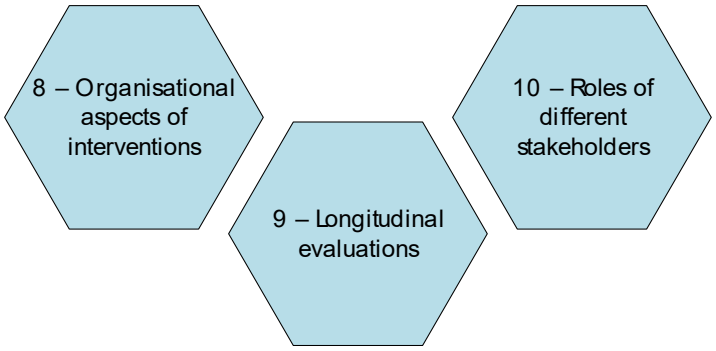
[133] This refers to instances where healthcare workers may be prosecuted for providing healthcare services to terrorists or individuals affiliated with terrorist organisations. See, for example, Buissonniere et al. (2018).

3.3. Research gaps on interventions to reduce, prevent and mitigate violence against healthcare

Three research gaps were identified regarding interventions to reduce, prevent and mitigate violence against healthcare: 1) the design and evaluation of organisational aspects of interventions; 2) longitudinal evaluations of interventions; and 3) the role of different stakeholders in addressing violence against healthcare. These research gaps are numbered #8, #9 and #10 respectively.

Research in this space has direct applications for formulating more effective interventions countering violence against healthcare. Understanding the organisational and long-term aspects of interventions may support the development of more comprehensive and sustained interventions that not only protect healthcare workers and patients from individual instances of violence, but may also lead to the development of interventions to reduce the long-term frequency and impact of violence against healthcare. Understanding the role of different stakeholders is considered a key component of reducing violence against healthcare, in particular in conflict areas, and links to broader comments on the importance of interdisciplinary approaches to research (see research gap #20).

Figure 49. Research gaps on interventions



Research Gap #8: Design and evaluation of organisational aspects of interventions

Summary of research gap:					
Research on interventions focuses primarily on changes at the individual level. There is less research on organisational-level interventions that address issues such as organisational culture or systemic hierarchies.					
Description of research gap:					
As described in Section 2.5, there is a body of work within the existing literature on interventions that seeks to prevent, reduce and/or mitigate the prevalence and impact of violence against healthcare. These interventions, however, are more commonly designed and implemented at the individual level, with interventions such as training intended to support individual patients or healthcare workers to identify and manage instances of violence. Figure 41 and Figure 42 in Chapter 2 indicate that the majority of research on interventions focuses either on training or the development and introduction of tools, measures and techniques to manage individual incidents of violence. There is less research on organisational-level interventions, including considerations such as organisational culture, structures and systems of management,[134] although the literature review did identify a number of studies of policies and strategies to reduce violence.					
Implications of research gap:					
A lack of research on the organisational aspects of interventions limits existing understanding of the degree to which organisational considerations may add to and complement existing interventions. Factors such as organisational culture may limit the degree to which individual interventions are maintained beyond the initial period of testing, and may also influence their effectiveness in different organisational contexts. A lack of research in this area may also limit the effectiveness of organisational-level interventions, such as changes in organisational policy or internal operating procedures. Finally, a focus on organisational-level interventions may shift the responsibility for combatting violence against healthcare from the individual and onto the system, which may lead to beneficial second-order consequences such as reducing burnout rates among healthcare staff.					
Areas for future research:					
Research into organisational-level interventions may seek to understand the ways in which organisational-level considerations contribute to and ameliorate – or, alternatively, enable and allow – violence against healthcare. Research may focus on the organisational aspects of existing interventions, or seek to develop new types of intervention that focus directly on organisational considerations such as culture or structure. An understanding of the organisational factors involved in interventions may also help to explain differences in the effectiveness of interventions across different contexts, and may support more effective translation of interventions from one context to another.					
Impact rank:	15	Implementation rank:	7	Most relevant to:	Practitioners

[134] RAND Europe interviews with interviewees 7 and 12.

Research Gap #9: Longitudinal evaluations of interventions

Summary of research gap:					
The majority of studies of interventions countering violence against healthcare are cross-sectional by design. There are relatively few longitudinal evaluations of interventions.					
Description of research gap:					
As illustrated in Figure 12 in Chapter 2, the majority of studies of interventions in violence against healthcare are cross-sectional by design. While cross-sectional studies confer knowledge on specific populations, interventions and settings, the findings are necessarily limited by the temporal constraints of the research design. Cross-sectional studies provide a valuable snapshot of the effectiveness of interventions on violence against healthcare, but they do not provide long-term evaluations of the effectiveness of interventions over time.					
Implications of research gap:					
An absence of longitudinal studies limits existing understanding of the long-term effectiveness of interventions. The temporal aspects of an intervention may be important, as factors such as ease of use and perceived effectiveness by users may reduce the overall effectiveness of interventions over time. A lack of longitudinal research calls into question the robustness of existing findings on interventions countering violence against healthcare.					
Areas for future research:					
Longitudinal studies may be carried out to measure and evaluate the effectiveness of different interventions over time. Research in this area may seek identify characteristics and requirements of interventions that remain effective in the medium and long term. A greater focus on longitudinal research designs may support the design and implementation of interventions that are effective not only in the short term, but also in the medium to long term.					
Impact rank:	5	Implementation rank:	17	Most relevant to:	Researchers

Research Gap #10: Role of different stakeholders in addressing violence against healthcare

Summary of research gap:					
There is less research on the role of different actors beyond the immediate delivery of healthcare in combatting violence against healthcare.					
Description of research gap:					
Combatting violence against healthcare is inherently interdisciplinary, and necessarily involves stakeholders such as the military, NGOs, police, government, local actors, lawyers and others, depending on the specific context of violence. The roles of these actors in preventing and mitigating violence against healthcare is less well understood, including, for example, the role of politics and international relations in mediated volence against healthcare in conflict areas,[135] and the role of the military and NGOs as potential interlocutors between healthcare and the government in conflict areas.[136] Existing research appears to focus primarily on the role of healthcare providers in managing violence against healthcare, and does not adequately address the role of a more diverse range of stakeholders, in particular in conflict areas.[137] As a result, stakeholder groups often undertake discrete efforts without full appreciation for the potential scope of their combined coverage and capabilities.					
Implications of research gap:					
Whilst healthcare providers are undoubtedly a primary stakeholder, the potential role and value of different stakeholder groups in combatting violence against healthcare appears less well understood, including the interplay between different groups and their interaction with healthcare providers. This may limit the degree to which wider stakeholders are actively engaged by policymakers and practitioners, and may inhibit the development of more holistic and effective policies and interventions. Moreover, there may be additional efficiencies in adequate role allocation between stakeholders, including reducing duplication of effort and preventing conflicting approaches.					
Areas for future research:					
Addressing this research gap requires the adoption of participatory research methods that consider and include a wider range of stakeholders. This may include widening the scope of research projects to incorporate views and inputs from different stakeholder groups, ensuring research teams are multidisciplinary and include researchers from different backgrounds and academic fields, and carrying out research that focuses specifically on understanding the roles of different stakeholders in combatting violence against healthcare. Research in this area may not only strengthen interventions on violence against healthcare, but may also help to bridge the gap between research and practice. Partnership research may enhance the transfer and use of knowledge in practice, thereby challenging and enhancing practitioners' and researchers' views, assumptions and roles.[138]					
Impact rank:	7	Implementation rank:	7	Most relevant to:	Researchers

[135] RAND Europe interview with interviewees 15.

[136] RAND Europe interviews with interviewees 2 and 7.

[137] RAND Europe interviews with interviewees 2, 15 and 7.

[138] Nyström et al. (2018).

Table 8. Summary of research gaps on interventions to reduce, prevent and mitigate violence against healthcare

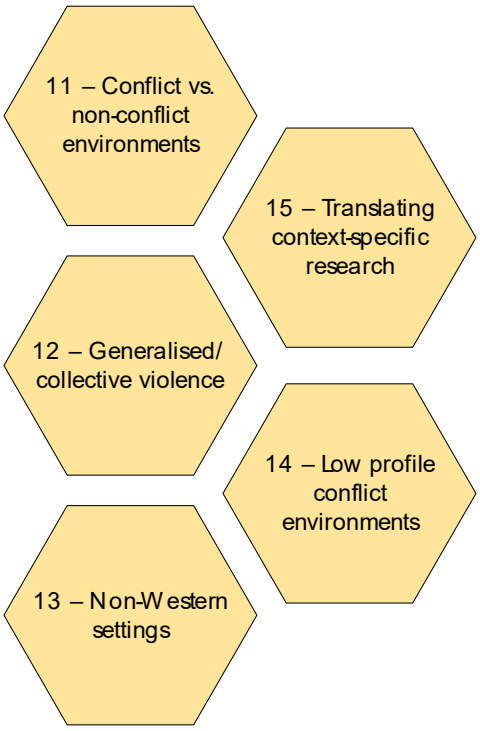
#	Research gap	Description
8	**Design and evaluation of organisational aspects of interventions**	Research on interventions focuses primarily on tools and techniques to support individual healthcare workers manage individual instances of violence. There is less research on organisational-level interventions that address wider issues, such as organisational culture or systemic power imbalances.
9	**Longitudinal evaluations of interventions**	The majority of research that evaluates interventions is cross-sectional by design, with relatively few longitudinal evaluations of interventions. An absence of longitudinal studies limits a continual understanding of the effectiveness of interventions over a more extended period of time.
10	**Role of different stakeholders in addressing violence against healthcare**	Addressing violence against healthcare is inherently interdisciplinary, and necessarily involves stakeholders such as the military, NGOs, police, government and local actors. There is, however, little research on the role of actors who are not involved in the immediate delivery of healthcare in the literature on combatting violence against healthcare.

3.4. Research gaps in specific contexts of violence

Five research gaps were identified that relate to different contexts of violence against healthcare: 1) uncertainty as to whether violence against healthcare in conflict and non-conflict environments should be considered fundamentally the same or fundamentally different phenomena; 2) violence against healthcare in areas of generalised/collective violence; 3) research in non-Western settings; 4) violence against healthcare in conflict areas, in particular in lower-profile conflict areas; and 5) translating research findings from one context to another. These research gaps are numbered #11, #12, #13, #14 and #15 respectively.

Research gaps in this category not only consider violence against healthcare in specific contexts, such as conflict areas and non-Western settings, but also more broadly the definition of different contexts and the transferability of research from one context to another. Research gaps in this category address an overarching debate on the transferability of research findings on violence against healthcare from one context to another. Consensus does not exist on the extent to which there is a single underpinning logic to violence against healthcare, or whether in diverse settings (i.e. conflict, non-conflict, areas of generalised/collective violence) it constitutes fundamentally different phenomena. In other words, there is disagreement on the primacy of context-specificity in this space.

Figure 50. Research gaps on specific contexts of violence



Research Gap #11: Violence against healthcare in conflict and non-conflict environments as fundamentally the same or fundamentally different phenomena

Summary of research gap:					
It is unclear whether violence against healthcare in conflict and non-conflict environments is underpinned by the same principals, and should be considered as fundamentally the same or fundamentally different phenomena.					
Description of research gap:					
There appears to be a lack of consensus as to whether violence against healthcare in conflict and non-conflict environments should be considered as fundamentally the same or fundamentally different phenomena.[139] Some interviewees argued that violence against healthcare in conflict environments is fundamentally different to violence against healthcare in non-conflict settings, and should therefore be considered as separate phenomena.[140] Others argued for a broader definition of violence that was location-agnostic, encapsulating not only violence in conflict and non-conflict environments, but also structural violence, politicisation and criminalisation of healthcare, and structural pressures on the healthcare system, such as brain drain.[141] Whilst these positions are not necessarily incompatible,[142] this incongruity between interviewees points towards a lack of consensus on the definition and structure of the field of research, and the degree to which findings from conflict and non-conflict environments are relevant to different contexts.					
Implications of research gap:					
Disagreement on the existence of an underpinning logic of violence against healthcare may limit the quality of academic research and debate, in particular if it remains unclear whether researchers are discussing comparable or contrasting phenomena when presenting research in conflict and non-conflict environments. A lack of understanding in this area may also inhibit more nuanced research on environments that do not fit neatly into either category, as described in research gap #12.					
Areas for future research:					
Research in this area should seek to understand in more detail the similarities and differences between violence against healthcare in conflict and non-conflict areas, and seek to build consensus on the definition and structure of the field of research. A more nuanced understanding of the underlying logic of violence against healthcare in conflict and non-conflict environments may provide additional structure and clarity to the existing academic debate, and may also feed into existing and future research into which research findings may be translated between different contexts of violence.					
Impact rank:	15	Implementation rank:	3	Most relevant to:	Researchers

[139] RAND Europe interviews with interviewees 2 and 3.

[140] RAND Europe interviews with interviewees 2 and 15.

[141] RAND Europe interviews with interviewees 8 and 7.

[142] RAND Europe interview with interviewee 15, for example, indicated that a broad and inclusive definition of violence against healthcare is important, but the interviewee argued for a fundamental difference between violence against healthcare in conflict and non-conflict environments.

Research Gap #12: Violence against healthcare in areas of generalised/collective violence outside general conflict

Summary of research gap:					
There is an absence of research on violence against healthcare in contexts that are below the threshold of armed conflict, but nonetheless experience high levels of generalised/collective violence.					
Description of research gap:					
Violence against healthcare is often conceptualised as occurring in either conflict or non-conflict zones. This distinction is important in areas such as international humanitarian law (IHL), which only protects healthcare from violence in armed conflict zones and is not applicable to non-conflict areas. The conflict/non-conflict binary, however, does not adequately reflect the range of different contexts of violence, including environments that may include characteristics of conflict areas, such as high levels of generalised/collective violence, but nonetheless fall below the threshold of armed conflict. Examples include violence against healthcare in countries such as Colombia or Mexico, where there are high levels of drug-related violence, post-conflict environments with depleted healthcare infrastructure such as Lebanon or Iraq, or states with violent historical legacies such as South Africa or Brazil. Existing research does not appear to adequately address the particular nature of violence against healthcare within these environments, including the characterisation of these environments, the similarities and differences between these environments and more conventionally defined conflict and non-conflict areas, and the degree to which research in conflict and non-conflict zones applies and may be adapted to instances of violence against healthcare in areas of increased generalised/collective violence.[143]					
Implications of research gap:					
The lack of understanding of the nature of violence against healthcare in areas of generalised/collective violence outside of general conflict limits the degree to which existing research findings may be translated to non-binary settings. The absence of a clear definition of violence against healthcare in these environments poses challenges for instances of violence that fall short of the criteria for IHL, as they cannot be easily understood as either conflict- or non-conflict areas and thus do not qualify for a place on the international humanitarian agenda.[144]					
Areas for future research:					
Research in this area may focus on understanding the particular features of violence against healthcare in areas of generalised/collective violence, and the degree to which research in conflict and non-conflict areas may be translated into non-binary settings. Research may also seek to define different ways of categorising contexts of violence to remove the conflict/non-conflict dichotomy, such as differentiating contexts based on individual instances of violence vs. systematic state/group-level violence, or using criminality as a metric to differentiate between different contexts of violence. A more nuanced understanding of the different contexts of violence may allow research findings and ways of working to be translated more readily between different environments, and lead to the development of more effective interventions that are better tailored to local conditions.					
Impact rank:	11	**Implementation rank:**	14	**Most relevant to:**	Practitioners

[143] RAND Europe interviews with interviewees 2, 3, 7, 11 and 15.

[144] RAND Europe interviewee 12, with Ukraine provided as an example by the interviewee.

Research Gap #13: Research in non-Western settings

Summary of research gap:					
Existing research focuses primarily on violence against healthcare in Western settings, particularly with regard to violence in non-conflict environments. There is less research on violence against healthcare in non-Western settings.					
Description of research gap:					
As illustrated in Figure 8, the majority of existing research focuses on violence against healthcare in Western settings, and in particular in North America and Western Europe. There are a number of possible explanations for this bias, including levels of funding, number of academic institutions, level of academic interest, difficulties in conducting research in non-Western settings, or biases in the literature search that focused primarily on English-language literature sources. Some non-Western settings, such as China, Iran, India and Pakistan, do have higher volumes of existing research, but this remains significantly below the volume of Western contexts.					
Implications of research gap:					
The bias in research towards Western contexts may lead to a less robust understanding of the nature, scale and impact of violence against healthcare in non-Western settings. This in turn may limit the development and implementation of effective interventions that are tailored to non-Western settings. A bias towards Western contexts may also reduce the range and diversity of ideas within the academic literature, and also reduce the likelihood of Western-focused research benefiting from new ideas and alternative perspectives derived from efforts in non-Western contexts.					
Areas for future research:					
Future research may seek to rectify this imbalance by focusing on violence against healthcare in non-Western settings. This may include measurements of the prevalence and impact of violence in non-Western sample populations, analysis of the similarities and differences between violence in Western and non-Western contexts, and the implementation and evaluation of interventions in non-Western contexts. Conducting research in non-Western environments may in itself require research that identifies barriers and recommends solutions that may be implemented to overcome them. Where available, this may draw on existing work in other fields of research, such as international humanitarian aid and public health. Greater diversity in the geographic focus of research may increase the understanding of violence against healthcare in non-Western countries and more generally as a global phenomenon. Interventions may be better tailored to non-Western contexts, and consequently be more effective in reducing the prevalence and impact of violence against healthcare in non-Western settings. Literature that is more inclusive of non-Western settings and perspectives may benefit from an increased range of ideas and from the transferability of research findings to different contexts.					
Impact rank:	5	Implementation rank:	14	Most relevant to:	Practitioners

Research Gap #14: Violence against healthcare in conflict areas, in particular in lower-profile conflict areas

Summary of research gap:					
Research on violence against healthcare in conflict areas focuses primarily on countries in the Middle East.					
Description of research gap:					
As illustrated in Figure 10 in Chapter 2, only a small proportion of studies (5.2 per cent) focus on violence against healthcare in conflict areas, with the vast majority of research (91.4 per cent) studying violence against healthcare in non-conflict areas. There is thus a comparative lack of research into violence against healthcare in conflict areas.[145] Moreover, as illustrated in Figure 11 in Chapter 2, existing research on violence against healthcare in conflict areas focuses primarily countries located in the Middle East, including Syria, Iraq, Yemen, Afghanistan and Israel. Whilst these countries undoubtedly suffer high levels of violence against healthcare, other conflict environments that also experience high levels of violence against healthcare are comparatively less frequently researched.[146] Examples identified include the Central African Republic (CAR) and Ukraine.[147]					
Implications of research gap:					
A lack of research into violence against healthcare in conflict areas limits existing understanding of the prevalence, impact and effectiveness of interventions in these contexts. Moreover, whilst it is important to research conflict environments in the Middle East, a disproportionate regional focus may result in an incomplete understanding of violence against healthcare across all conflict areas. This may reduce the ability of healthcare workers to operate safely in conflict environments not located in the Middle East, as the risks may be less well understood and the availability of effective countermeasures may be lower.					
Areas for future research:					
Researchers may conduct further research on violence against healthcare in conflict areas in general, as this constitutes an area of comparatively less research. Moreover, there may be particular value in studying violence against healthcare in conflict areas not located in the Middle East, such as those in Africa (e.g. the CAR) and South East Asia (e.g. Myanmar). Research in this area may lead to a stronger and more complete evidence base on violence against healthcare in conflict environments. Ensuring that conflict environments are examined holistically without geographic bias may raise the profile of violence against healthcare as a global phenomenon, albeit with context-specific differences, and support the development of tailored, location-specific policies and interventions.					
Impact rank:	15	**Implementation rank:**	16	**Most relevant to:**	Practitioners

[145] RAND Europe interview with interviewee 15.

[146] RAND Europe interviews with interviewees 2, 10 and 11.

[147] RAND Europe interviews with interviewees 2 and 11.

Research Gap #15: Translating research findings from one context to another

Summary of research gap:					
It is unclear to what degree and in which ways research on violence against healthcare in one context may be translated and applied to another.					
Description of research gap:					
Violence against healthcare is commonly understood as highly context specific, meaning research carried out in one context may be less applicable in another. This not only refers to the applicability of research across broad contextual differences, such as between low- and high-income countries or conflict and non-conflict environments, but also between individual locations, such as between two neighbouring, high-income countries or between two countries experiencing ongoing civil conflict. This critique even extends to micro-level contextual differences, such as differences between individual medical centres or between individual departments within the same medical facility. Whilst this is acknowledged as a fundamental constraint of empirical research, in the context of violence against healthcare there appears to be a lack of clarity on the degree and ways in which context-specific research may be translated from one context to another.[148] This applies in particular to contexts where there is no context-specific research, but where there is nonetheless a requirement to introduce effective and evidence-based interventions that reduce the prevalence and/or impact of violence against healthcare.					
Implications of research gap:					
An absence of research on the transferability of research on violence against healthcare may inhibit the development and implementation of effective, evidence-based interventions, in particular in environments where there is no existing context-specific research. Colombia, for example, was highlighted as one area where interventions countering violence against healthcare have been relatively effective, but the extent to which the same policies and practices may be translated to other contexts of violence is unclear.[149]					
Areas for future research:					
Future research may seek to understand the degree to which research can be translated from one context to another, and develop a framework that supports this type of analysis. Research may also seek to translate specific research findings (including interventions) from one context to another such that that the findings have an increased positive impact on the local environment. Research on the applicability and transferability of research findings from one context to another may increase the value and usability of existing and future research on violence against healthcare, and may support the development of more appropriate and effective interventions, in particular in contexts where the is an absence of context-specific research.					
Impact rank:	11	Implementation rank:	7	Most relevant to:	Researchers

[148] RAND Europe interviews with interviewees 2, 6, 7, 8, 9, 11, 12 and 15.

[149] RAND Europe interview with interviewee 15.

Table 9. Summary of research gaps in specific contexts of violence

#	Research gap	Description
11	**Violence in conflict and non-conflict environments as fundamentally the same or fundamentally different phenomena**	There is broad disagreement on whether a single logic underpins violence against healthcare in all contexts, or whether violence against healthcare in conflict and non-conflict environments is governed by fundamentally different underlying logics.
12	**Violence against healthcare in environments of generalised/collective violence**	There is an lack of research and clear conceptualisation of violence against healthcare in contexts that are neither defined as conflict or peacetime, but experience high levels of violence, qualifying them as generalized/collective violence environments. This includes areas with high levels of drug-related violence, organised crime, and powerful local militia/non-state armed groups.
13	**Research in non-Western settings**	The majority of the existing research focuses on violence against healthcare in Western settings and in countries in the northern hemisphere (see Figure 8). There is comparatively less research on violence against healthcare in non-Western settings.
14	**Violence against healthcare in conflict areas, in particular in lower-profile conflict areas**	There is comparatively less research on violence against healthcare in conflict areas, and research on conflict areas focuses primarily on countries in the Middle East. Other conflict areas (such as those in Africa, Central and South American and Asia) feature less frequently in the literature.
15	**Translating research findings from one context to another**	It is unclear to what degree and in which ways research on violence against healthcare may be translated and applied from one context to another.

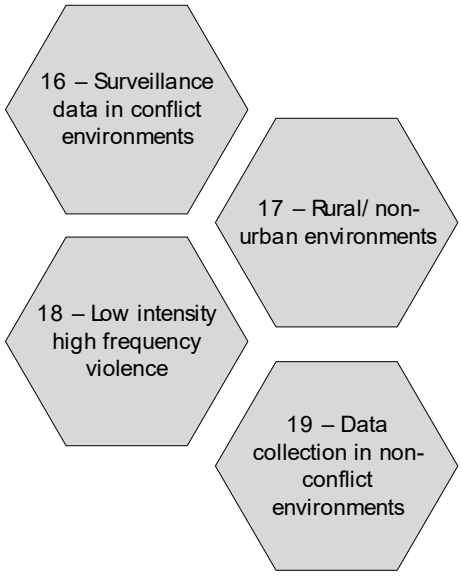
3.5. Research gaps in data collection

Four research gaps were identified that relate specifically to data collection: 1) the quantity and quality of surveillance data in conflict environments; 2) data on violence against healthcare in non-urban/rural environments; 3) data on lower-intensity but higher-frequency violence in conflict areas; and 4) the variety of data collection methods in non-conflict environments. These research gaps are numbered #16, #17, #18 and #19 respectively.

Data quality and quantity represents an important building block for research on violence against healthcare. Although data collection mechanisms have improved in recent years, several gaps were identified with regards to data collection. This includes limitations of existing data surveillance methods on violence against healthcare in conflict-affected environments, which – whilst extremely challenging to implement in a reliable manner – were criticised for providing incomplete information, inadequate levels of disaggregation, and failing to capture important information such as perpetrators, locations and types of violence. Data in conflict environments also appears to focus predominantly on high-impact attacks, while less attention is paid to frequent but lower-impact types of violence faced by healthcare workers, meaning lower-intensity but higher-frequency violence is less well understood in the literature. There also appears to be a bias towards data in urban as opposed to rural environments, and data collection in non-conflict areas is often conducted through self-reported surveys and questionnaires.

Limitations in data, be it incomplete, insufficient or biased, have the potential to impede understanding of violence against healthcare and the development of appropriate and effective countermeasures. Advancing the quantity and quality of data in conflict areas would feed directly into research, policy and strategy processes and support global advocacy efforts.

Figure 51. Research gaps on data collection



Research Gap #16: Quantity and quality of surveillance data in conflict environments

Summary of research gap:					
Surveillance data on violence against healthcare in conflict areas is insufficient in quantity and quality.					
Description of research gap:					
Whilst data on violence against healthcare in conflict areas is available,[150] it is limited both in terms of its quantity and quality of information.[151] This refers in particular to surveillance data, which records instances of violence on an ongoing basis. Interviewees were critical of existing data that does not capture information at a sufficiently granular level, such as specific locations, perpetrators and means of attack.[152] Furthermore, data collection currently focuses on discrete incidences of violence, which limits research on more complex forms of violence such as structural violence against healthcare.[153] Numerous studies identify limitations in existing data, but few provide tangible solutions to improving existing data collection mechanisms.[154] It is acknowledged, however, that collecting data in conflict environments is challenging, not only due to security risks, but also because of ethical considerations.					
Implications of research gap:					
An absence of high-quality data limits the quality and rigor of associated research, and reduces the confidence and validity of research findings. This reduces understanding of violence against healthcare in conflict areas.					
Areas for future research:					
Collecting high-quality data in conflict environments is challenging, and involves a number of practical and ethical barriers that must be carefully considered and overcome. Research in this area should seek to develop tangible mechanisms for collecting more granular, comprehensive and higher-quality data. There may also be value in developing a standardised approach to data collection to ensure that important types of data are collected, and to assist in subsequent analysis involving comparisons across multiple different conflict environments. Data collection would ideally take place over an extended period of time, as this supports longitudinal as well as cross-sectional analysis. There may be value in data collection carried out by an unaffiliated third party organisation that is exempt from the constraints of international humanitarian organisations.[155] Ultimately, higher-quality data may lead to more rigorous and insightful research findings, which may in turn support a more in-depth understanding of violence against healthcare in conflict environments. Higher-quality data may also increase awareness of violence against healthcare in conflict environments, which may encourage further engagement and research.					
Impact rank:	3	Implementation rank:	22	Most relevant to:	Researchers

[150] See, for example, WHO (n.d.b).
[151] RAND Europe interviews with interviewees 1, 2, 4, 5, 7, 9, 10 and 11.
[152] RAND Europe interview with interviewee 10.
[153] RAND Europe interviews with interviewees 3 and 6.
[154] See, for example, Afzal & Jafar (2019).
[155] RAND Europe interviews with interviewees 6 and 10.

Research Gap #17: Data on violence against healthcare in non-urban/rural environments

Summary of research gap:					
There is a bias in the literature on violence against healthcare towards urban environments. There is less research on violence against healthcare in rural environments.					
Description of research gap:					
Existing research appears to be biased towards violence against healthcare in urban environments, with relatively few research articles focusing on rural settings.[156] This may in part be due to the dominance of international actors and large NGOs, the majority of which are located in urban settings. While local organisations are more frequently based in rural communities, they feature less frequently in research on violence against healthcare. It was also suggested that larger academic institutions often only partner with a selected number of large NGOs when carrying out field research in conflict areas. While this provides academic institutions with access to information on the ground, it sidelines smaller local NGOs, which in turn can lead to a bias towards research in urban environments.[157]					
Implications of research gap:					
Biases in data collection lead to biases in analysis and understanding. An incomplete understanding of the nature, prevalence and impact of violence across both urban and rural settings may lead to less effective interventions that omit the perspectives and requirements of rural healthcare services, and may further exacerbate a rural–urban divide. If unaddressed, the research gap may also act to perpetuate unequal power dynamics in international affairs by focusing on the perspectives of international actors and governments as opposed to local stakeholders.					
Areas for future research:					
Further research is required to estimate more concretely the level of urban bias in existing research. Data collection and analysis may wish to focus more on rural settings to help reduce existing biases in the literature, and comparative analysis between urban and rural settings may elicit important similarities and differences between these contexts. Testing and adapting existing policies and interventions for application in rural settings may help mitigate the prevalence and impact of violence against healthcare in complex conflict environments. Research in this area may ultimately increase understanding of violence against healthcare, which may support more tailored and effective interventions in rural settings.					
Impact rank:	19	Implementation rank:	17	Most relevant to:	Researchers

[156] RAND Europe interview with interviewee **11**.

[157] RAND Europe interview with interviewee **11**.

Research Gap #18: Data on lower-intensity but higher-frequency violence in conflict areas

Summary of research gap:					
Research in conflict environments focuses primarily on high-intensity attacks. Lower-intensity but more common forms of violence feature less frequently in the literature.					
Description of research gap:					
Although reporting on violence against healthcare in conflict zones has improved in recent years, both reporting and data collection focus primarily on direct large-scale attacks such as aerial bombing.[158] Smaller-scale but more common forms of violence encountered by healthcare workers in conflict settings are less frequently reported and less reliably captured in datasets,[159] and hence are less well understood within the literature. This includes violence such as looting, blockades, arrests of healthcare workers, and the normative and ethical challenges faced by healthcare workers, such as pressures to prioritise healthcare to members of non-state armed actors before other patients.[160] Lower-intensity incidences of violence may be perpetrated by different actors with different motives than perpetrators of large-scale attacks, and hence require different solutions from policymakers and practitioners.					
Implications of research gap:					
Reporting and research on large-scale incidents of violence against healthcare in conflict zones is important for raising awareness and developing more effective policy and practitioner interventions. It is, however, also important to investigate lower-intensity but higher-frequency forms of violence in conflict zones in order to understand the full extent and range of violence faced by healthcare workers and patients in conflict settings, and to ensure that effective interventions are provided where required. A bias towards higher-intensity but lower-frequency forms of violence may misrepresent the day-to-day challenges faced in conflict environments, and may lead to interventions that do not adequately address the full extent and impact of violence against healthcare.					
Areas for future research:					
Research on violence against healthcare in conflict environments may seek to understand in more detail the nature and impact of lower-intensity but higher-frequency violence in conflict zones. Whilst this may be challenging across a wide geographic area, it may be implemented on a more local scale through, for example, engagement with individual healthcare facilities within conflict-affected areas. Examining the full spectrum of violence may lead to a more holistic understanding of violence against healthcare in conflict environments, which may support the development and implementation of interventions that address a more comprehensive range of violence.					
Impact rank:	1	Implementation rank:	20	Most relevant to:	Practitioners

[158] RAND Europe interviews with interviewees 1, 3 and 4.

[159] RAND Europe interview with interviewee 15; the interviewee noted that capturing this type of data in conflict areas is difficult due to under-reporting and challenges in corroborating information.

[160] RAND Europe interview with interviewee 3.

Research Gap #19: Variety of data collection methods in non-conflict environments

Summary of research gap:					
Data collection in non-conflict settings is primarily carried out through surveys and questionnaires, with other types of data collection rarely used.					
Description of research gap:					
Figure 12 in Chapter 2 indicates that surveys are by far the most common form of data collection mechanism, in particular in non-conflict areas (noting that research in non-conflict areas constitutes the vast majority of existing literature). Whilst this form of data collection provides valuable insights into the experiences of healthcare workers and patients, it can suffer from recall or intentionality biases, and can lead to inaccurate reporting or underreporting of violence. Other forms of data collection have been used less frequently in research on violence against healthcare.					
Implications of research gap:					
Overemphasis on and unexamined biases within certain research methods may lead to systematic errors in the evidence base and the acceptance of inaccurate outcomes and conclusions. Moreover, a predominance of one form of data collection may limit the range and depth of insights that may be gained through a more diverse application of research methodologies, thus limiting overall understanding of violence against healthcare.					
Areas for future research:					
Researchers may consider alternative forms of data collection and analysis that build on rather than mirror existing research, although it is important that methods are still selected based on suitability and feasibility of implementation. This also extends to different types of research method, which – similarly to alternative forms of data collection – may lead to a greater range and depth of insights into violence against healthcare. Perspectives from Critical Theory were highlighted in particular by several interviewees (see research gap #23), although other types of research method should also be explored. Overall, a more heterogeneous evidence base may increase the range and depth of ideas in the literature, and support more robust research findings, in particular when corroborated by multiple different types of research.					
Impact rank:	20	**Implementation rank:**	11	**Most relevant to:**	Researchers

Table 10. Summary of research gaps on data collection

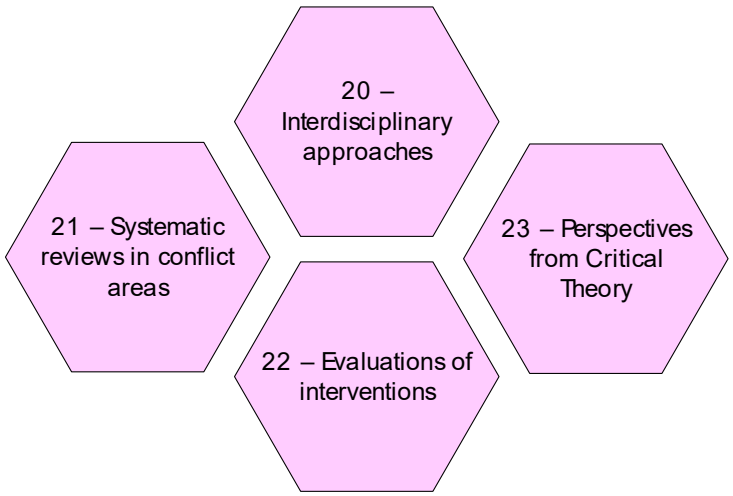
#	Research gap	Description
16	**Quantity and quality of surveillance data in conflict environments**	Existing surveillance data on violence against healthcare in conflict areas is limited in quality and quantity, and does not capture key information such as the perpetrators and specific locations of attacks.
17	**Data on violence against healthcare in non-urban/rural environments**	The literature on violence against healthcare is biased towards urban environments. This may be driven by dominant collection practices that focus on the perspectives of large, urban-based NGOs and international institutions at the expense of local, rural-based actors.
18	**Data on lower-intensity but higher-frequency violence in conflict zones**	Healthcare workers in conflict zones face a wide spectrum of violence ranging from high-intensity attacks (e.g. aerial bombing) to more frequent but less high-impact types of violence (e.g. looting, blockade and arrest). Such low-intensity but more frequent forms of violence feature less prominently in the literature.
19	**Variety of data collection methods in non-conflict environments**	Data collection in non-conflict settings is primarily carried out through surveys and questionnaires, with the rare inclusion of other research methods. This limits the development of the evidence base as such research methods can suffer from recall or intentionality biases, and may lead to inaccurate or unrepresentative reporting of violence.

3.6. Gaps in research methods

Four research gaps were identified that relate to research methods: 1) interdisciplinary approaches to research; 2) systematic reviews of research in conflict areas; 3) evaluations of interventions in conflict areas; and 4) perspectives from Critical Theory. These research gaps are numbered #20, #21, #22 and #23 respectively.

These research gaps refer to methodological shortcomings in existing research. The incorporation of novel perspectives and narratives from other disciplines, including Critical Theory, could lead to a more rigorous and robust evidence base that interrogates the assumptions that underpin research on violence against healthcare. Research would also benefit from collaborative approaches with relevant fields, including political science, international relations and economics. An absence of interdisciplinary perspectives may overlook relevant insights or neglect the opportunity to uncover biases in current evidence. Additional systematic reviews and evaluations of existing interventions in conflict areas would provide greater clarity on the status of the evidence base, and indicate the degree to which existing interventions are supported by research.

Figure 52. Research gaps on research methods



Research Gap #20: Interdisciplinary approaches to research

Summary of research gap:					
The issue of violence against healthcare is inherently interdisciplinary and requires insights from various disciplines. However, there is limited interdisciplinarity research on violence against healthcare.					
Description of research gap:					
The issue of violence against healthcare is inherently interdisciplinary, and requires input and analysis from scholars and practitioners from areas including security, health, law, international development, international relations, economics and politics. In spite of this, interviewees highlighted a lack of interdisciplinary research on the topic, with the majority of studies conducted by researchers who work within public health.[161] Although not its core focus, the literature review identified few interdisciplinary studies, although a number of illustrative examples were identified with perspectives from economics, sociology and political science, including, for example, the political economy aspects of individual strikes and the implications of political actors in low-income countries.[162]					
Implications of research gap:					
A lack of interdisciplinary research limits the range and depth of ideas in the field, and does not fully utilise existing bodies of work that may provide valuable insights into violence against healthcare. The exclusion of perspectives from diverse fields of research may prevent a more complete understanding of violence against healthcare as an interdisciplinary phenomenon, with a failure to appreciate and incorporate factors such as drivers of violence and ways of measuring and understanding its impact.					
Areas for future research:					
Future research in this area may seek to engage directly with academics from different fields, some of whom may not have worked on violence against healthcare but have relevant and valuable experience in related fields of study. For example, research on the motivations for perpetrating violence against healthcare (research gap #1) may benefit from the large body of literature in political science focusing on understanding motivations for engaging in armed conflict at the individual and collective level.[163] There may be value in conducting research that brings together academics from different disciplines to form collaborative research projects, including (although not limited to) security, health, law, international development, international relations, economics and politics. Interdisciplinary research brings additional perspectives and insights, and may provide a deeper and more nuanced understanding of violence against healthcare. Building on large bodies of established research in related areas such as economics and political science may broaden the theoretical and methodological horizons for understanding complex phenomena. Given the interdisciplinary nature of violence against healthcare, an interdisciplinary approach may be required in order to fully understand the different aspects of this topic.					
Impact rank:	11	**Implementation rank:**	4	**Most relevant to:**	Researchers

[161] RAND Europe interviews with interviewees 3, 6, 13 and 15.

[162] Russo et al. (2019).

[163] Barrett (2011).

Research Gap #21: Systematic reviews of research in conflict areas

Summary of research gap:					
There are few systematic reviews that assess the existing research on violence against healthcare in conflict areas.					
Description of research gap:					
The literature review identified few systematic reviews of existing literature on violence against healthcare in conflict, post-conflict and fragile environments. Three reviews were identified in total, although two of these are structured narrative reviews that carry out comprehensive searches of the literature, but focus on aggregating and presenting the findings from these sources as opposed to assessing the status of the current evidence base. The third review by Afzal & Jafar (2019) provides a detailed overview of existing literature on the impact of violence in conflict areas. There is an absence of similar reviews of other areas of study, such as research on the prevalence of violence in conflict areas, and on existing measures and interventions used to protect healthcare workers, facilities and patients in conflict areas.					
Implications of research gap:					
Systematic reviews provide a detailed overview of the quality, quantity, breadth and depth of existing literature in particular fields of study. The results highlight the degree to which existing knowledge is underpinned by a reliable evidence base, and help identify gaps in existing literature and related areas of future research. An absence of systematic reviews inhibits these assessments of the literature on violence against healthcare in conflict areas, and inhibits future research that addresses key limitations in the existing evidence base.					
Areas for future research:					
The research presented in this report provides an initial overview of the literature on conflict areas, but remains broad in scope which limits the level of detail in any one area. More targeted systematic reviews that focus on specific areas of research would add value to the overall evidence base on violence against healthcare. This includes, for example, literature on existing data collection and monitoring mechanisms, on the prevalence of violence against healthcare in conflict areas, and on interventions that seek to reduce violence against healthcare in conflict areas.					
Impact rank:	10	Implementation rank:	1	Most relevant to:	Researchers

Research Gap #22: Evaluations of interventions in conflict areas

Summary of research gap:					
There are few studies that examine the effectiveness of existing interventions in conflict areas.					
Description of research gap:					
The literature review identified a number of studies that describe existing interventions and provide recommendations for future interventions and measures to safeguard healthcare workers in conflict areas. This includes techniques for individual healthcare workers to protect themselves from violence, policies and ways of working that may be implemented by healthcare facilities and organisations to protect their employees and patients from violence, and national and international policies, strategies and legal frameworks that may be implemented to protect healthcare services more broadly. The literature review, however, identified few studies that examine the effectiveness of these interventions. This observation was also reflected in stakeholder interviews, with interviewees noting that existing interventions and recommendations are largely based on expert opinion and tacit knowledge held by individuals and organisations with extensive experience of delivering healthcare services in conflict areas.[164] Whilst this knowledge supports the ongoing safeguarding of healthcare services in conflict areas, there is a lack of clarity regarding the effectiveness of such interventions. As one interviewee noted: 'What works and what does not work?'[165]					
Implications of research gap:					
Whilst effective measures for managing violence against healthcare in conflict areas undoubtedly exist, an absence of reliable evaluations of these measures may lead to the continued use of ineffective ways of working. There is also a lack of transparency on the quality and type of evidence that supports existing measures and recommendations, as it is often unclear whether methods for protecting healthcare services in conflict areas are supported by research or are derived from expert opinion and personal experience. A reliance on tacit knowledge may reduce the availability and transfer of important knowledge to individuals and organisations without personal ties to the sources of this information.					
Areas for future research:					
Future research may begin by examining the full range of available interventions, measures, tools, techniques and ways of working that are used to safeguard healthcare services in conflict areas, and determining the types of evidence that support their continued use. This would improve transparency and ensure this information is available to healthcare providers around the world. Future research may also conduct evaluations of existing interventions to understand and measure their effectiveness. This would provide a clearer indication of *what works and what does not*, although it is important to note that a lack of evaluations does not in itself invalidate established ways of working developed through individual and organisational experience. Moreover, in some instances evaluations of interventions and ways of working may not be possible or may be extremely difficult to carry out, due both to the challenges of working in conflict areas and the complexity of the environment.					
Impact rank:	1	Implementation rank:	19	Most relevant to:	Practitioners

[164] RAND Europe interviews with interviewees 4 and 15.

[165] RAND Europe interview with interviewee (anonymous).

Research Gap #23: Perspectives from Critical Theory

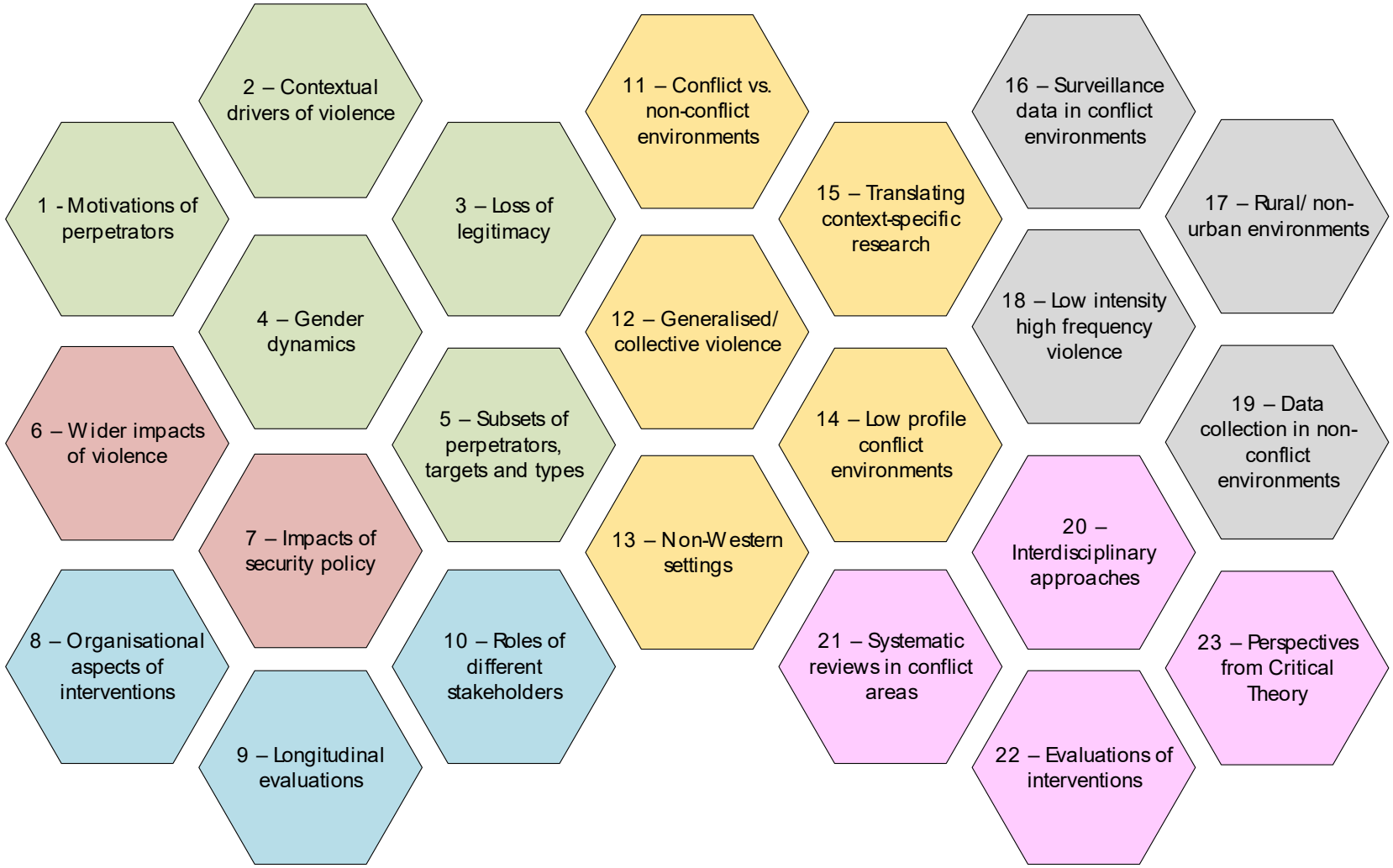
Summary of research gap:					
Approaches and ideas from Critical Theory do not feature strongly in existing research on violence against healthcare. Further research in this area may lead to a more nuanced understanding within the field.					
Description of research gap:					
The conventional – or technical – approach to research on violence against healthcare has been criticised by proponents of Critical Theory for omitting a bottom-up contextual approach to understanding the dynamics and processes involved. Interviewees from this area of research argued that an increased appreciation and incorporation of ideas from Critical Theory would facilitate a more holistic understanding of violence against healthcare with greater focus on context-specificity.[166] It is insufficient for research to focus on quantitative measures that demonstrate a global rise in violence against healthcare; rather, there ought to be a more sustained focus on bottom-up dynamics that drive attacks, and efforts to understand why healthcare is being politicised and targeted in a given context. This approach seeks to problematise premises such as medical neutrality and the apolitical nature of healthcare provision, and posits that healthcare provision is not always an apolitical act, and as such an attack on healthcare can be intended as an attack on a given political system or institution.					
Implications of research gap:					
An absence of Critical Theory from the mainstream discourse on violence against healthcare may perpetuate a single paradigm for analysis. Without a critical perspective, the complexity and context-specificity of this issue may be overlooked in favour of the ontological and epistemological underpinnings of a technical approach. Similarly to the lack of understanding of the contextual drivers of violence against healthcare, interventions to prevent/reduce attacks may be less successful without the inclusion of insights from Critical Theory, which emphasise context-specificity.					
Areas for future research:					
Research in this area may seek to apply approaches from Critical Theory to the problem of violence against healthcare, and understand the implications of research findings for the wider field of study. This can include insights from post-colonial theory in particular, building on existing – though limited – research on violence against healthcare which critically examines Western-centric perspectives and assumptions. Research may also benefit from existing theoretical work within other fields such as anthropology, which emphasises ethnographic research methods. Critical Theory provides a novel lens through which different aspects of violence against healthcare can be emphasised. It should be used as one of many tools for understanding and measuring the problem. Additionally, it represents a useful prism through which prevailing assumptions about the nature of violence against healthcare can be uncovered and interrogated.					
Impact rank:	20	**Implementation rank:**	2	**Most relevant to:**	Researchers

[166] RAND Europe interviews with interviewees 8, 7 and 11.

Table 11. Summary of research gaps on research methods

#	Research gap	Description
20	**Interdisciplinary approaches to research**	The issue of violence against healthcare is inherently interdisciplinary, requiring insights and perspectives that bridge security, public health, law, humanitarian aid and other fields. However, there is an inadequate level of interdisciplinary research on violence against healthcare.
21	**Systematic reviews of research in conflict areas**	There are few systematic reviews of available literature on violence against healthcare in conflict areas. This makes it more difficult to understand the degree to which existing assertions on violence against healthcare are supported by evidence in the literature, and makes it more challenging to identify future areas of research that address key limitations in the existing evidence base.
22	**Evaluations of interventions in conflict areas**	There are few evaluations of interventions and ways of working that safeguard healthcare workers in conflict areas, with this information typically held as tacit knowledge by experts and individuals/organisations with experience in delivering healthcare services in such areas. There is a lack of evidence on the extent to which different interventions are effective, and a lack of transparency on the nature and quality of evidence supporting existing recommendations.
23	**Perspectives from Critical Theory**	Approaches and ideas from Critical Theory do not feature strongly in existing research on violence against healthcare. The inclusion of more critical perspectives may lead to a more complex and nuanced understanding of the field and may confer a higher degree of context specificity.

Figure 53. Summary of research gaps



4. Prioritisation of research

Research prioritisation is a process that assesses the relative importance of future research against predefined criteria, the outputs of which may be used to inform future research.

This chapter summarises the results of the research prioritisation exercise carried out on the research gaps outlined in Chapter 3. This prioritisation exercise was carried out as part of an internal workshop at RAND Europe, and was based on the STREAM method, as described in Section 1.6.4.[167] The STREAM method provides a structured approach to research prioritisation, breaking down the prioritisation process into two overarching criteria: impact and feasibility of implementation. These criteria are defined in Table 12, together with a third criterion (relevance to practitioners/policymakers/researchers) that was added in order to understand the relevance of each research gap to key stakeholders in the field.

The criteria presented in Table 12 are intentionally broad in scope in order to facilitate the scoring of the research gaps identified in Chapter 3. Earlier formulations of the STREAM criteria were developed by the research team which included more granular categories such as cost of implementation and transferability of results, but initial trials indicated that these could not be easily be applied given the breadth of each individual research gap. This earlier version of the STREAM criteria is provided in Annex C; it may in future be used to prioritise specific research proposals within a selected research gap.

[167] Popper et al. (2013).

Figure 54. Research method and research questions for Chapter 4

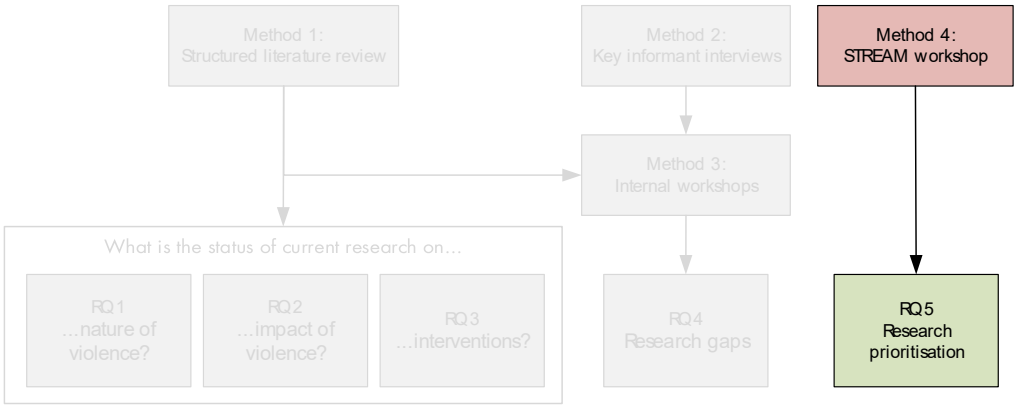


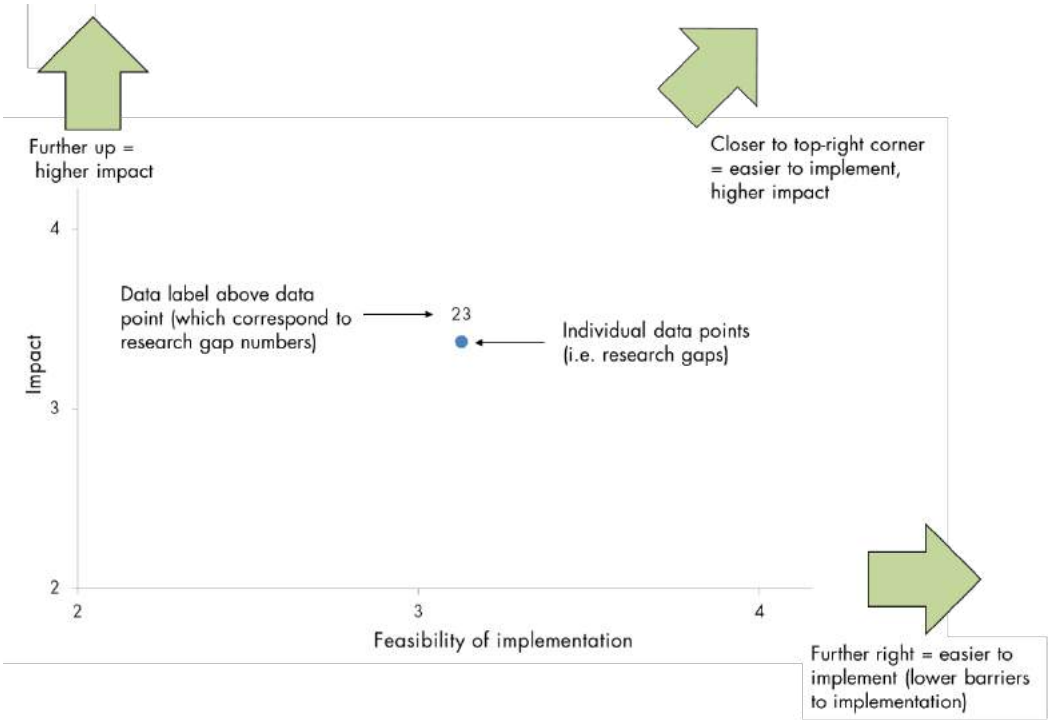
Table 12. Definition of STREAM criteria

Criteria	Description	Scoring range
Impact of research	This criterion assesses the overall magnitude of impact, were the research gap to be addressed.	1 (no impact) to 5 (ground-breaking research)
Feasibility of implementation	This criterion assesses the feasibility of carrying out the research that addresses the research gap, including the presence and scale of any barriers to implementation. Note that this does *not* refer to the feasibility of implementing research findings by, for example, policymakers or practitioners.	1 (impossible to implement) to 5 (no barriers to implementation)
Relevance to practitioners/policy-makers/researchers	This criterion assesses the degree to which research findings would be of interest and usable to three different stakeholder groups: practitioners/policymakers/researchers.	1 (no relevance) to 5 (highly relevant)

Note on reading STREAM graphs

The aggregated scores from STREAM workshops are typically presented as scatter plots, with feasibility of implementation on the x-axis and impact on the y-axis. The scores are designed such that higher scores correspond to more 'desirable' traits, with higher impact scores corresponding to higher impact, and higher feasibility scores corresponding to lower barriers to implementation. Data points located closer to the top-right corner of the graph correspond to both higher impact and lower barriers to implementation, and hence represent the combination of both desirable traits. Note that although the scoring criteria are defined from 1 to 5, the axes may be shortened (e.g. from 2 to 4) to illustrate more clearly the differences between data points. Relevance scores may be integrated into impact-implementation graphs, or presented in separate graphs (see Sections 4.2 and 4.3 below).

Figure 55. Guidance for reading STREAM graphs



4.1. Analysis of impact and implementation scores

Figure 56 illustrates the aggregated impact and feasibility of implementation scores for all research gaps identified in this study. These scores represent the arithmetic mean of the scores provided by all workshop participants. All research gaps received scores between 2 and 4.5 for feasibility of implementation, and between 2.5 and 4.5 for impact, indicating that the scoring is clustered within the middle bracket of scores for both criteria. Previous experience of the study team suggests that this type of clustering is commonly observed when carrying out scoring exercises of this nature. Participants rarely use extreme high or low scores when assessing individual entries, and instead rely primarily on scores of 2, 3 and 4.

Figure 56 provides an initial indication of the research gaps that received higher average scores for impact and feasibility of implementation.[168] Systematic reviews of research in conflict areas (21) received the highest overall combined score (illustrated by proximity to the top–right corner of the graph), suggesting research in this area may be relatively easy to implement (i.e. low barriers to implementation) and may have relatively high impact. In contrast, data on violence against healthcare in non–urban/rural environments (17) received the lowest overall combined score, suggesting research in this area may not only be more difficult to implement (i.e. high barriers to implementation), but may also have a relatively low impact.

Figure 56 also provides an indication of research gaps that received separate high and low scores for impact and feasibility of implementation. Data on lower–intensity but higher–frequency violence in conflict areas (18) and evaluations of interventions in conflict areas (22), for example, both received the highest overall score for impact, whereas gender dynamics in violence against healthcare (4), specific subsets of perpetrators, targets and types of violence (5), variety of data collection methods in non–conflict environments (19), and perspectives from Critical Theory (23) all received the lowest score for impact. Similarly for feasibility of implementation, systematic reviews of research in conflict areas (21) is considered to be the area of research with lowest barriers to implementation, whereas the motivations of perpetrators of violence against healthcare (1) and surveillance data in conflict environments (16) both score lowest for feasibility of implementation.

In prioritising areas for future research, researchers may decide to prioritise against impact, feasibility of implementation, or a combination of both. Table 14 to Table 16 present the top five ranking for each of these three areas.

[168] The combined score is calculated as the sum of the impact and implementation scores.

Figure 56. Impact and implementation scores (aggregated across workshop participants)

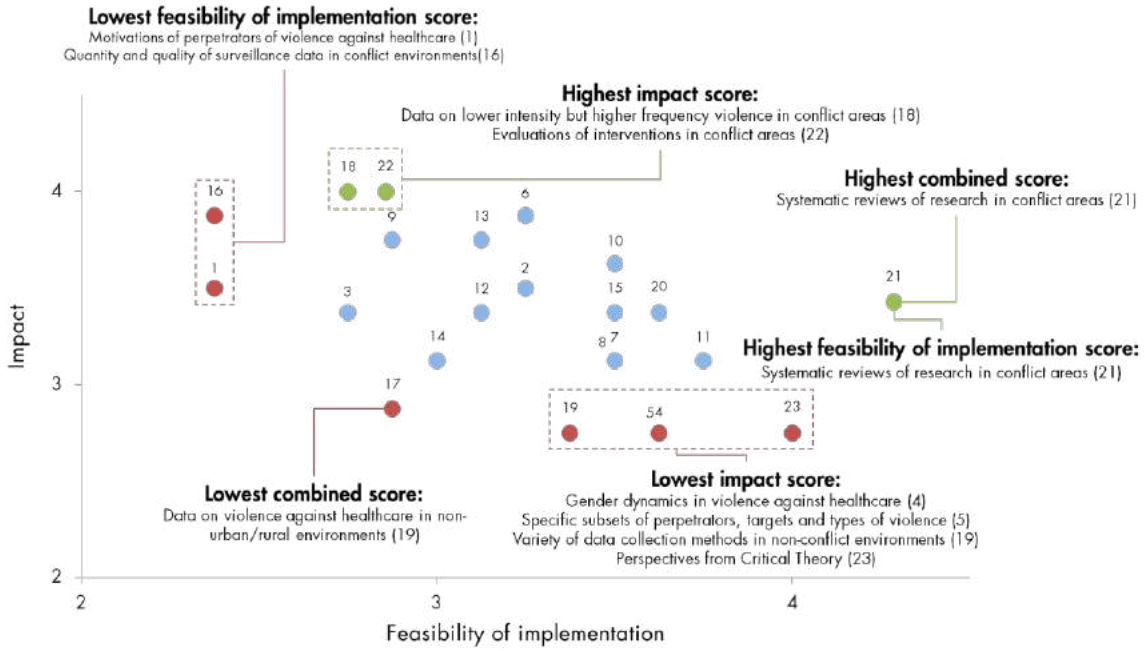


Table 13. Reference numbers for STREAM figures

#	Research Gap	#	Research gap
1	Motivations of perpetrators of violence against healthcare	12	Violence against healthcare in areas of generalised/collective violence outside general conflict
2	Contextual drivers of violence against healthcare	13	Research in non-Western settings
3	Loss of legitimacy of service for healthcare workers in conflict areas	14	Violence against healthcare in conflict areas, in particular in lower-profile conflict areas
4	Gender dynamics in violence against healthcare	15	Translating research findings from one context to another
5	Specific subsets of perpetrators, targets and types of violence	16	Quantity and quality of surveillance data in conflict environments
6	Wider impacts of violence against healthcare	17	Data on violence against healthcare in non-urban/rural environments
7	Indirect impacts of security policies on healthcare	18	Data on lower-intensity but higher-frequency violence in conflict areas
8	Design and evaluation of organisational aspects of interventions	19	Variety of data collection methods in non-conflict environments
9	Longitudinal evaluations of interventions	20	Interdisciplinary approaches to research
10	Role of different stakeholders in addressing violence against healthcare	21	Systematic reviews of research in conflict areas
11	Violence against healthcare in conflict and non-conflict environments as fundamentally the same or fundamentally different phenomena	22	Evaluations of interventions in conflict areas
		23	Perspectives from Critical Theory

Table 14. Ranking by combined impact and implementation score (top five only)

Rank	Research gap
1	Systematic reviews of research in conflict areas
2	Wider impacts of violence against healthcare
2	Role of different stakeholders in addressing violence against healthcare
4	Interdisciplinary approaches to research
5	Violence against healthcare in conflict and non-conflict environments as fundamentally the same or fundamentally different phenomena
5	Research in non-Western settings
5	Translating research findings from one context to another

Table 15. Ranking by impact score (top five only)

Rank	Research gap
1	Data on lower-intensity but higher-frequency violence in conflict areas
1	Evaluations of interventions in conflict areas
3	Wider impacts of violence against healthcare
3	Quantity and quality of surveillance data in conflict environments
5	Longitudinal evaluations of interventions
5	Research in non-Western settings

Table 16. Ranking by feasibility of implementation score (top five only)

Rank	Research gap
1	Systematic reviews of research in conflict areas
2	Perspectives from Critical Theory
3	Violence against healthcare in conflict and non-conflict environments as fundamentally the same or fundamentally different phenomena
4	Gender dynamics in violence against healthcare
4	Specific subsets of perpetrators, targets and types of violence
4	Interdisciplinary approaches to research

4.2. Relevance to practitioners, policymakers and researchers

Relevance to different stakeholders, such as practitioners, policymakers and researchers, is a further area that may be considered when prioritising future research. For example, a researcher may wish to address a research gap that is considered relatively high impact, relatively easy to implement and particularly relevant to researchers, or alternatively, a research gap that is considered high impact and particularly relevant to practitioners, and where feasibility of implementation is not an important consideration.

As outlined in the introduction to this chapter, relevance was defined in this study as the usability of research findings for different stakeholder groups, which refers specifically to the degree to which practitioners, policymakers and researchers may be interested in and able to apply the research findings to their area of work. Workshop participants were asked the following question:

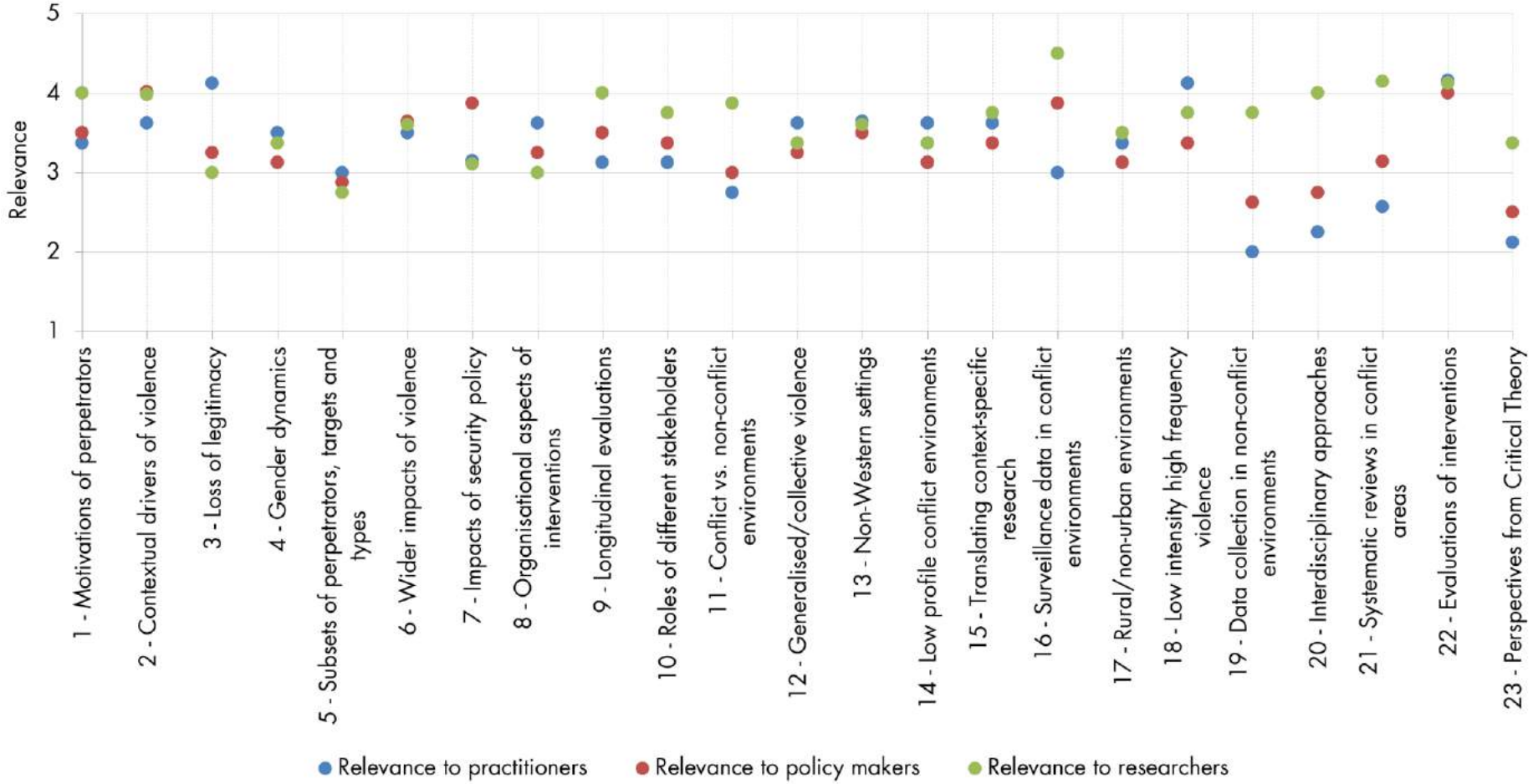
> *'If research were to be carried out in this area, to what degree would practitioners, policymakers and researchers be interested in and able to apply the research findings to their work?'*

Figure 57 provides a summary of the relevance scores for all 23 research gaps. A number of research gaps scored comparatively highly for each stakeholder. For example, research on the loss of legitimacy of service for healthcare workers in conflict areas (3) and data on lower-intensity but higher-frequency violence in conflict areas (18) were both scored as particularly relevant to practitioners, whereas research on the contextual drivers of violence against healthcare (2) and on the indirect impacts of security policies on healthcare (7) both scored highest for policymakers. Systematic reviews of research in conflict areas (21) and the quantity and quality of surveillance data in conflict areas (16) were both considered particularly relevant to researchers, and evaluations of interventions in conflict areas (22) scored highly for practitioners, policymakers and researchers alike.

Figure 57 also highlights that some research gaps are considered equally relevant for all three stakeholders, whereas others are considered relevant to one or two stakeholders only. Research on the wider impacts of violence against healthcare (6) and in non-Western settings (13), for example, received relatively similar scores for all three stakeholders, whereas research on violence against healthcare in conflict and non-conflict environments as fundamentally the same or fundamentally different phenomena (11) and interdisciplinary approaches to research (20) both received a wider spread of scores for different stakeholders. This may be useful if seeking to develop research with broader relevance across all stakeholder groups.

Table 17, Table 18 and Table 19 offer more granular breakdowns of the top 10 research gaps by relevance for practitioners, policymakers and researchers, with the full lists provided in Annex A. These lists provide a reference point for researchers seeking to identify and prioritise future work on violence against healthcare, especially if relevance to a specific stakeholder is required.

Figure 57. Relevance of research for different stakeholders



Note: research gaps are numbered according to Table 13.

Table 17. Top 10 research gaps by relevance to practitioners

Rank	Research gap
1	Evaluations of interventions in conflict areas
2	Loss of legitimacy of service for healthcare workers in conflict areas
2	Data on lower-intensity but higher-frequency violence in conflict areas
4	Contextual drivers of violence against healthcare
4	Design and evaluation of organisational aspects of interventions
4	Violence against healthcare in areas of generalised/collective violence outside general conflict
4	Research in non-Western settings
4	Violence against healthcare in conflict areas, in particular in lower-profile conflict areas
4	Translating research findings from one context to another
10	Gender dynamics in violence against healthcare
10	Wider impacts of violence against healthcare

Table 18. Top 10 research gaps by relevance to policymakers

Rank	Research gap
1	Contextual drivers of violence against healthcare
1	Evaluations of interventions in conflict areas
3	Indirect impacts of security policies on healthcare
3	Quantity and quality of surveillance data in conflict environments
5	Wider impacts of violence against healthcare
6	Motivations of perpetrators of violence against healthcare
6	Longitudinal evaluations of interventions
6	Research in non-Western settings
9	Role of different stakeholders in addressing violence against healthcare
9	Translating research findings from one context to another
9	Data on lower-intensity but higher-frequency violence in conflict areas

Table 19. Top 10 research gaps by relevance to researchers

Rank	Research gap
1	Quantity and quality of surveillance data in conflict environments
2	Systematic reviews of research in conflict areas
2	Evaluations of interventions in conflict areas
4	Motivations of perpetrators of violence against healthcare
4	Contextual drivers of violence against healthcare
4	Longitudinal evaluations of interventions
4	Interdisciplinary approaches to research
8	Violence against healthcare in conflict and non-conflict environments as fundamentally the same or fundamentally different phenomena
9	Role of different stakeholders in addressing violence against healthcare
9	Translating research findings from one context to another
9	Data on lower-intensity but higher-frequency violence in conflict areas
9	Variety of data collection methods in non-conflict environments

4.3. Combining impact, implementation and relevance

Building on the previous two sections, a more tailored prioritisation may seek to select research gaps based on a combined assessment of impact, feasibility implementation and relevance to specific stakeholders.

Figure 58 provides a visual graphic that supports this type of assessment. Research gaps are plotted according to their score for impact and feasibility of implementation, but in addition the size of dot is scaled according to relevance for policymakers. Larger dots correspond to research gaps considered more relevant to policymakers, and smaller dots correspond to research gaps considered less relevant to policymakers. The top five research gaps considered most relevant to policymakers are highlighted in blue. Based on this representation, systematic reviews of research in conflict areas (21) and interdisciplinary approaches to research (20) appear to be two areas with particular relevance to researchers and with relatively low barriers to implementation, whereas evaluations of interventions in conflict areas (22) and surveillance data in conflict environments (16) appear to be two areas with similar relevance to researchers but with comparatively higher impact. Depending on individual and organisational objectives and constrains, researchers may choose to prioritise one or both of these criteria, which in turn may inform the selection of specific areas of research.

Assessments similar to this may be made whilst emphasising relevance to practitioners or policymakers, as visualised in Figure 59 and Figure 60 below.

Figure 58. Impact and feasibility of implementation scores, scaled according to relevance to researchers, with top scoring research gaps coloured blue

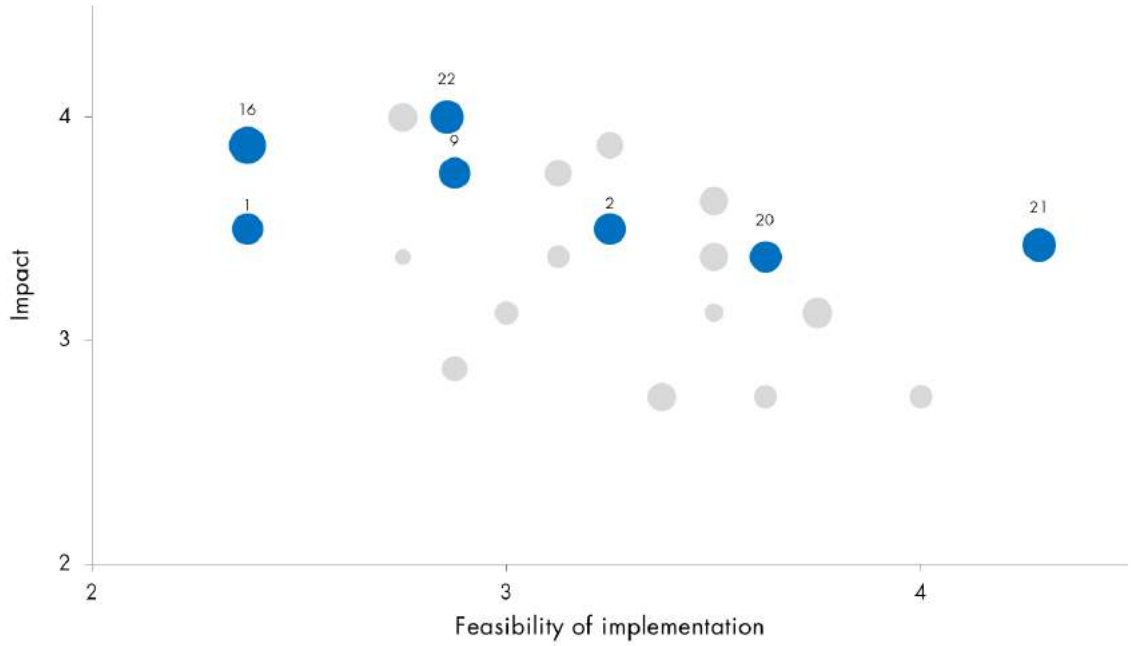
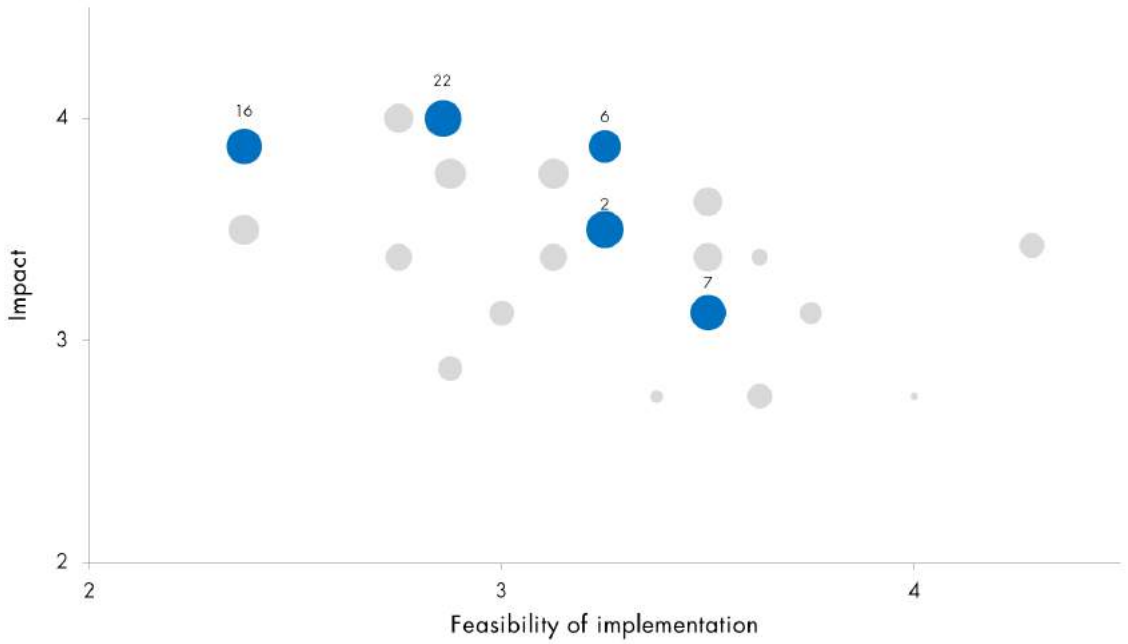


Figure 59. Impact and implementation scores, scaled according to relevance to practitioners, with top scoring research gaps coloured blue

Figure 60. Impact and implementation scores, scaled according to relevance to policymakers, with top scoring research gaps coloured blue



4.4. Final note on research prioritisation

The analysis in Sections 4.1 to 4.3 provides an example of the way in which research gaps and future research may be prioritised against disaggregated criteria in a systematic manner. This includes prioritisation against a single criterion of interest, such as impact, implementation, and/or relevance to specific stakeholders, as well as prioritisation against a combination of these criteria, such as combined impact/implementation scores, and prioritisation across impact, implementation and relevance combined.

Whilst this type of assessment can provide useful insights into the prioritisation process, in reality it forms just one component of a more comprehensive prioritisation process that should not only consider impact, implementation and relevance, but also incorporate other factors such as availability of resources and organisational priorities. Moreover, as noted in the introduction to this chapter and Section 1.6.4, the research prioritisation presented in this study was constrained by the relatively broad scope of the research gaps, which in turn limited the granularity of the scoring criteria. Further work in this area may seek to shortlist a number of research gaps, and subsequently develop concrete research proposals that may be assessed against more granular criteria such those presented in Annex C.

Finally, for all scores presented in this section, it is important to acknowledge the limitations of the input data, and in particular the possibility of biases in scoring due to the backgrounds and current roles of workshop participants. As highlighted in Section 1.6.4, workshop participants were senior researchers at RAND Europe with backgrounds in security and/or health research. Whilst this included individuals with previous practitioner experience, including in the delivery of healthcare services in both conflict and non-conflict environments, it is nonetheless possible that overall scores may be biased towards the perspective of professional researchers. Future studies in this area may seek to carry out a similar scoring exercise with participants from different professional backgrounds, such as policymakers and/or practitioners. This type of exercise may give greater insight into the perceptions and scoring of different groups of stakeholders who work in the violence against healthcare domain.

5. Conclusions and recommendations

From attacks on hospitals in Syria, to verbal abuse against nurses in China and disruptive behaviour by physicians in America, violence against healthcare continues to impede the delivery of and access to healthcare around the world. Whilst practitioners and policymakers continue to engage in ongoing efforts to protect healthcare services and reduce the frequency and impact of violence against healthcare, there is an important role for researchers in understanding the underlying nature of the problem, and in designing effective measures that provide better protection to healthcare workers, patients and healthcare facilities.

The aim of this research was threefold: i) to review the existing evidence base on violence against healthcare; ii) to identify research gaps; and iii) to prioritise future areas of research. Through a structured literature review, the research team identified 1,412 literature sources on violence against healthcare. The literature review highlighted an evidence base that is broad in scope, but one that is weighted towards certain areas of research. The majority of existing research focuses on violence against healthcare in North America, Europe and East Asia, in high- and upper-middle-income countries, and in non-conflict areas. Where specified, the majority of sources examine violence carried out by patients and targeted towards healthcare workers (in particular nurses), and study either physical and/or psychological violence, in particular interpersonal physical violence, verbal abuse and aggression.

Of the three broad themes under analysis (nature of violence; impact of violence; associated interventions), the evidence base as a whole concentrates primarily on the nature of violence, and in particular on measuring the prevalence of violence in different healthcare settings, including hospitals (general), emergency departments and psychiatric settings. Just over a quarter of the existing literature examines the impact of violence, focusing mainly on the personal impact of violence and its immediate impact on the delivery of healthcare. Just under a quarter of studies examine interventions that seek to reduce the prevalence and/or impact of violence, with sources in this area focusing mainly on training for healthcare workers, and tools, measures and techniques to help healthcare workers manage individual instances of violence.

Only a small proportion of research focuses on violence against healthcare in conflict, post-conflict and fragile environments, and where specified, this research focuses primarily on countries in the Middle East. Research in conflict, post-conflict and fragile environments also focuses primarily on physical violence, including interpersonal violence, violence with large weapons, theft, looting, kidnapping and robbery, and on violence carried out by unaffiliated third parties (i.e. neither family nor friends of patients or healthcare workers). Just over half of sources focusing the nature of violence against healthcare, including measuring and understanding the prevalence of violence. Where present, sources that examine the impact of violence focus more on the impact on healthcare

infrastructure and healthcare workers, and less on the related impact on patients or the wider impact beyond the immediate healthcare system. Sources that examine interventions mainly study existing interventions as opposed to new interventions, and focus more on policy, strategy and legislation. There are comparatively fewer studies that consider training interventions in conflict, post-conflict and fragile environments when compared to the overall evidence base. There are also relatively few existing systematic reviews and meta-analyses that focus specifically on violence against healthcare literature in conflict, post-conflict and fragile environments, which limits understanding of the quality of existing evidence.

Considered as a whole, it is clear that there is an existing body of literature that examines a number of important aspects of violence against healthcare, but that also contains a number of limitations that prevent a more comprehensive, nuanced and thorough understanding. This view was confirmed by a number of external experts, with the research team conducting 14 interviews with 15 stakeholders from government, academia and healthcare services in order to further understand the status of existing research, and to help identify research gaps in the literature. Although the number of interviews limits the universality of the results, a number of key themes were identified through both the interviews and literature review, leading to the identification of 23 research gaps. These gaps are clustered into six areas: 1) research gaps on the nature of violence against healthcare; 2) research gaps on the impacts of violence against healthcare; 3) research gaps on interventions to reduce, prevent and mitigate violence against healthcare; 4) research gaps in specific contexts of violence; 5) research gaps in data collection; and 6) research gaps in specific research methods. The gaps remain relatively broad in scope, but nonetheless highlight a number of areas that may benefit from future, more targeted research.

The analysis in Chapter 4 focused on prioritising future areas of research based on the evidence gaps identified in Chapter 3. This prioritisation scored each research gap according to expected impact, feasibility of implementation, and relevance of research findings to practitioners, policymakers and researchers. For example, data on lower-intensity but higher-frequency violence in conflict areas (18) received the highest score for impact, and systematic reviews of research in conflict areas (21) received both the highest score for feasibility of implementation, and the highest overall combined score. Whilst these rankings are based on scores from a limited number of workshop participants, it is hoped that the analysis provides useful information that will allow researchers to consider the relative advantages and disadvantages of pursuing different areas of research.

To move towards concrete research proposals and the implementation of future research, it is recommended that additional 'deep dives' are conducting in one or more research gaps, as this will generate a more detailed understanding of the specific areas of research that would benefit from further academic investigation. These proposals may then be assessed using an approach similar to that employed in Chapter 4, although this may also use a more granular set of criteria such as that outlined in Annex C. These results should be considered alongside relevant external factors, such as availability of resources and organisational priorities

Overall, it is hoped that the findings of this report support a more detailed understanding of the existing literature on violence against healthcare, and will help research organisations and individual researchers to identify and prioritise areas of research. In doing so, it is hoped that this in turn will lead to the development and implementation of research that provides new and important insights into violence against healthcare. This not only requires high-quality investigation into relevant areas

of research, but also requires research findings to be accessible and communicated in a manner that is useful to researchers, practitioners and policymakers. Ultimately, it is hoped that this will support policymakers and practitioners in protecting healthcare from violence, and in delivering healthcare services that are safe, secure and accessible to all.

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Annex A. Full ranking of research gaps against prioritisation criteria

This annex presents the full ranking of research gaps against the prioritisation criteria described in Chapter 4.

Table 20. Research gaps (ranked by combined impact and implementation score)

Rank	Research gap	Combined score
1	Systematic reviews of research in conflict areas	7.7
2	Wider impacts of violence against healthcare	7.1
2	Role of different stakeholders in addressing violence against healthcare	7.1
4	Interdisciplinary approaches to research	7.0
5	Violence against healthcare in conflict and non-conflict environments as fundamentally the same or fundamentally different phenomena	6.9
5	Research in non-Western settings	6.9
5	Translating research findings from one context to another	6.9
8	Evaluations of interventions in conflict areas	6.9
9	Contextual drivers of violence against healthcare	6.8
9	Data on lower-intensity but higher-frequency violence in conflict areas	6.8
9	Perspectives from Critical Theory	6.8
12	Indirect impacts of security policies on healthcare	6.6
12	Design and evaluation of organisational aspects of interventions	6.6
12	Longitudinal evaluations of interventions	6.6
15	Violence against healthcare in areas of generalised/collective violence outside general conflict	6.5
16	Gender dynamics in violence against healthcare	6.4
16	Specific subsets of perpetrators, targets and types of violence	6.4
18	Quantity and quality of surveillance data in conflict environments	6.3
19	Loss of legitimacy of service for healthcare workers in conflict areas	6.1
19	Violence against healthcare in conflict areas, in particular in lower-profile conflict areas	6.1
19	Variety of data collection methods in non-conflict environments	6.1
22	Motivations of perpetrators of violence against healthcare	5.9
23	Data on violence against healthcare in non-urban/rural environments	5.8

Table 21. Research gaps (ranked by aggregated impact score)

Rank	Research gap	Impact score
1	Data on lower-intensity but higher-frequency violence in conflict areas	4.0
1	Evaluations of interventions in conflict areas	4.0
3	Wider impacts of violence against healthcare	3.9
3	Quantity and quality of surveillance data in conflict environments	3.9
5	Longitudinal evaluations of interventions	3.8
5	Research in non-Western settings	3.8
7	Role of different stakeholders in addressing violence against healthcare	3.6
8	Motivations of perpetrators of violence against healthcare	3.5
8	Contextual drivers of violence against healthcare	3.5
10	Systematic reviews of research in conflict areas	3.4
11	Loss of legitimacy of service for healthcare workers in conflict areas	3.4
11	Violence against healthcare in areas of generalised/collective violence outside general conflict	3.4
11	Translating research findings from one context to another	3.4
11	Interdisciplinary approaches to research	3.4
15	Indirect impacts of security policies on healthcare	3.1
15	Design and evaluation of organisational aspects of interventions	3.1
15	Violence against healthcare in conflict and non-conflict environments as fundamentally the same or fundamentally different phenomena	3.1
15	Violence against healthcare in conflict areas, in particular in lower-profile conflict areas	3.1
19	Data on violence against healthcare in non-urban/rural environments	2.9
20	Gender dynamics in violence against healthcare	2.8
20	Specific subsets of perpetrators, targets and types of violence	2.8
20	Variety of data collection methods in non-conflict environments	2.8
20	Perspectives from Critical Theory	2.8

Table 22. Research gaps (ranked by aggregated implementation score)

Rank	Research gap	Implementation score
1	Systematic reviews of research in conflict areas	4.3
2	Perspectives from Critical Theory	4.0
3	Violence against healthcare in conflict and non-conflict environments as fundamentally the same or fundamentally different phenomena	3.8
4	Gender dynamics in violence against healthcare	3.6
4	Specific subsets of perpetrators, targets and types of violence	3.6
4	Interdisciplinary approaches to research	3.6
7	Indirect impacts of security policies on healthcare	3.5
7	Design and evaluation of organisational aspects of interventions	3.5
7	Role of different stakeholders in addressing violence against healthcare	3.5
7	Translating research findings from one context to another	3.5
11	Variety of data collection methods in non-conflict environments	3.4
12	Contextual drivers of violence against healthcare	3.3
12	Wider impacts of violence against healthcare	3.3
14	Violence against healthcare in areas of generalised/collective violence outside general conflict	3.1
14	Research in non-Western settings	3.1
16	Violence against healthcare in conflict areas, in particular in lower-profile conflict areas	3.0
17	Longitudinal evaluations of interventions	2.9
17	Data on violence against healthcare in non-urban/rural environments	2.9
19	Evaluations of interventions in conflict areas	2.9
20	Loss of legitimacy of service for healthcare workers in conflict areas	2.8
20	Data on lower-intensity but higher-frequency violence in conflict areas	2.8
22	Motivations of perpetrators of violence against healthcare	2.4
22	Quantity and quality of surveillance data in conflict environments	2.4

Table 23. Research gaps (ranked by aggregated relevance to practitioners score)

Rank	Research gap	Relevance to practitioners score
1	Evaluations of interventions in conflict areas	4.1
2	Loss of legitimacy of service for healthcare workers in conflict areas	4.1
2	Data on lower-intensity but higher-frequency violence in conflict areas	4.1
4	Contextual drivers of violence against healthcare	3.6
4	Design and evaluation of organisational aspects of interventions	3.6
4	Violence against healthcare in areas of generalised/collective violence outside general conflict	3.6
4	Research in non-Western settings	3.6
4	Violence against healthcare in conflict areas, in particular in lower-profile conflict areas	3.6
4	Translating research findings from one context to another	3.6
10	Gender dynamics in violence against healthcare	3.5
10	Wider impacts of violence against healthcare	3.5
12	Motivations of perpetrators of violence against healthcare	3.4
12	Data on violence against healthcare in non-urban/rural environments	3.4
14	Indirect impacts of security policies on healthcare	3.1
14	Longitudinal evaluations of interventions	3.1
14	Role of different stakeholders in addressing violence against healthcare	3.1
17	Specific subsets of perpetrators, targets and types of violence	3.0
17	Quantity and quality of surveillance data in conflict environments	3.0
19	Violence against healthcare in conflict and non-conflict environments as fundamentally the same or fundamentally different phenomena	2.8
20	Systematic reviews of research in conflict areas	2.6
21	Interdisciplinary approaches to research	2.3
22	Perspectives from Critical Theory	2.1
23	Variety of data collection methods in non-conflict environments	2.0

Table 24. Research gaps (ranked by aggregated relevance to policymakers score)

Rank	Research gap	Relevance to policymakers score
1	Contextual drivers of violence against healthcare	4.0
1	Evaluations of interventions in conflict areas	4.0
3	Indirect impacts of security policies on healthcare	3.9
3	Quantity and quality of surveillance data in conflict environments	3.9
5	Wider impacts of violence against healthcare	3.6
6	Motivations of perpetrators of violence against healthcare	3.5
6	Longitudinal evaluations of interventions	3.5
6	Research in non-Western settings	3.5
9	Role of different stakeholders in addressing violence against healthcare	3.4
9	Translating research findings from one context to another	3.4
9	Data on lower-intensity but higher-frequency violence in conflict areas	3.4
12	Loss of legitimacy of service for healthcare workers in conflict areas	3.3
12	Design and evaluation of organisational aspects of interventions	3.3
12	Violence against healthcare in areas of generalised/collective violence outside general conflict	3.3
15	Systematic reviews of research in conflict areas	3.1
16	Gender dynamics in violence against healthcare	3.1
16	Violence against healthcare in conflict areas, in particular in lower-profile conflict areas	3.1
16	Data on violence against healthcare in non-urban/rural environments	3.1
19	Violence against healthcare in conflict and non-conflict environments as fundamentally the same or fundamentally different phenomena	3.0
20	Specific subsets of perpetrators, targets and types of violence	2.9
21	Interdisciplinary approaches to research	2.8
22	Variety of data collection methods in non-conflict environments	2.6
23	Perspectives from Critical Theory	2.5

Table 25. Research gaps (ranked by aggregated relevance to researchers score)

Rank	Research gap	Relevance to researchers score
1	Quantity and quality of surveillance data in conflict environments	4.5
2	Systematic reviews of research in conflict areas	4.1
2	Evaluations of interventions in conflict areas	4.1
4	Motivations of perpetrators of violence against healthcare	4.0
4	Contextual drivers of violence against healthcare	4.0
4	Longitudinal evaluations of interventions	4.0
4	Interdisciplinary approaches to research	4.0
8	Violence against healthcare in conflict and non-conflict environments as fundamentally the same or fundamentally different phenomena	3.9
9	Role of different stakeholders in addressing violence against healthcare	3.8
9	Translating research findings from one context to another	3.8
9	Data on lower-intensity but higher-frequency violence in conflict areas	3.8
9	Variety of data collection methods in non-conflict environments	3.8
13	Wider impacts of violence against healthcare	3.6
13	Research in non-Western settings	3.6
15	Data on violence against healthcare in non-urban/rural environments	3.5
16	Gender dynamics in violence against healthcare	3.4
16	Violence against healthcare in areas of generalised/collective violence outside general conflict	3.4
16	Violence against healthcare in conflict areas, in particular in lower-profile conflict areas	3.4
16	Perspectives from Critical Theory	3.4
20	Indirect impacts of security policies on healthcare	3.1
21	Loss of legitimacy of service for healthcare workers in conflict areas	3.0
21	Design and evaluation of organisational aspects of interventions	3.0
23	Specific subsets of perpetrators, targets and types of violence	2.8

Annex B. Full STREAM dataset

This annex contains aggregated scores for impact, implementation and relevance for all 23 research gaps.

Table 26. Full list of aggregated STREAM scores

Research area	#	Research gap	Impact	Implem-entation	COMBINED Impact implementation	Relevance to practitioners	Relevance to policy-makers	Relevance to researchers	COMBINED Relevance
Research gaps on the nature of violence against healthcare (RQ1)	1	Motivations of perpetrators of violence against healthcare	3.5	2.4	5.9	3.4	3.5	4.0	10.9
	2	Contextual drivers of violence against healthcare	3.5	3.3	6.8	3.6	4.0	4.0	11.6
	3	Loss of legitimacy of service for healthcare workers in conflict areas	3.4	2.8	6.1	4.1	3.3	3.0	10.4
	4	Gender dynamics in violence against healthcare	2.8	3.6	6.4	3.5	3.1	3.4	10.0
	5	Specific subsets of perpetrators, targets and types of violence	2.8	3.6	6.4	3.0	2.9	2.8	8.6
Research gaps on the impact of violence against healthcare (RQ2)	6	Wider impacts of violence against healthcare	3.9	3.3	7.1	3.5	3.6	3.6	10.8
	7	Indirect impacts of security policies on healthcare	3.1	3.5	6.6	3.1	3.9	3.1	10.1
Research gaps on interventions for violence against healthcare (RQ3)	8	Design and evaluation of organisational aspects of interventions	3.1	3.5	6.6	3.6	3.3	3.0	9.9
	9	Longitudinal evaluations of interventions	3.8	2.9	6.6	3.1	3.5	4.0	10.6
	10	Role of different stakeholders in addressing violence against healthcare	3.6	3.5	7.1	3.1	3.4	3.8	10.3

Table 26 continued...

Research area	#	Research gap	Impact	Implem-entation	COMBINED Impact implementation	Relevance to practitioners	Relevance to policy-makers	Relevance to researchers	COMBINED Relevance
Research gaps in specific contexts of violence	11	Violence against healthcare in conflict and non-conflict environments as fundamentally the same or fundamentally different phenomena	3.1	3.8	6.9	2.8	3.0	3.9	9.6
	12	Violence against healthcare in areas of generalised/collective violence outside general conflict	3.4	3.1	6.5	3.6	3.3	3.4	10.3
	13	Research in non-Western settings	3.8	3.1	6.9	3.6	3.5	3.6	10.8
	14	Violence against healthcare in conflict areas, in particular in lower-profile conflict areas	3.1	3.0	6.1	3.6	3.1	3.4	10.1
	15	Translating research findings from one context to another	3.4	3.5	6.9	3.6	3.4	3.8	10.8
Research gaps in data collection	16	Quantity and quality of surveillance data in conflict environments	3.9	2.4	6.3	3.0	3.9	4.5	11.4
	17	Data on violence against healthcare in non-urban/rural environments	2.9	2.9	5.8	3.4	3.1	3.5	10.0
	18	Data on lower-intensity but higher-frequency violence in conflict areas	4.0	2.8	6.8	4.1	3.4	3.8	11.3
	19	Variety of data collection methods in non-conflict environments	2.8	3.4	6.1	2.0	2.6	3.8	8.4
Gaps in research methods	20	Interdisciplinary approaches to research	3.4	3.6	7.0	2.3	2.8	4.0	9.0
	21	Systematic reviews of research in conflict areas	3.4	4.3	7.7	2.6	3.1	4.1	9.9
	22	Evaluations of interventions in conflict areas	4.0	2.9	6.9	4.1	4.0	4.1	12.3
	23	Perspectives from Critical Theory	2.8	4.0	6.8	2.1	2.5	3.4	8.0

Annex C. Suggested criteria for assessing research proposals

Annex C presents an example of a more granular scoring framework that may be used to assess specific research proposals. This framework is based on a number of criteria that were identified throughout the research process, including:

- Financial cost of implementation
- Resource cost of implementation
- Marginal value-add of research
- Applicability and transferability of research findings
- Usability of research outputs
- Scale of the impact
- Cost-effectiveness
- Risk of unintended impacts
- Barriers to implementation, including practical, ethical and political barriers
- Relevance to different stakeholders
- Cost-effectiveness/value for money
- Scientific quality
- Cost of non-implementation.

Table 27. Suggested impact criteria

Category	Description	Scale
These categories are to be assessed for practitioners, policymakers and researchers separately		
Usability of research findings	This category considers the ease with which research findings may be used by different stakeholders in reducing the prevalence and/or impact of violence against healthcare. *How easy is it for different stakeholders to use the research findings in their work on violence against healthcare?* For practitioners, this refers to the ease with which research findings may be incorporated into on-the-ground efforts to reduce the prevalence and/or impact of violence in the delivery of healthcare. For policymakers, this refers to the ease with which research findings may be incorporated into the development of new or existing policy on violence against healthcare. For researchers, this refers to ease with which the research findings may be used in the development and/or implementation of future research on violence against healthcare.	1 = Unusable. Research findings cannot be applied into real-world applications without substantial additional work. 2 = Difficult to implement. Research findings cannot easily be translated into real-world applications. Certain specific findings and/or high-level findings may have relevance. 3 = Moderate to implement. Research findings may be translated into real-world applications with relative ease, although barriers to implementation do exist. 4 = Easy to implement. The research findings can be translated readily into real-world applications with little additional effort. Real-world applications clearly emerge from the research findings. 5 = Fully implementable. The research findings translate directly into real-world applications, and may be implemented immediately with no additional work.

Scale of impact	This category refers to the potential impact of the research findings for different stakeholders if successfully incorporated into their ongoing and future work. This may be impact at a local or global scale according to the focus of the research project. *Will the research have a transformative effect compared to existing knowledge or practice, or are improvements likely to be incremental?* For practitioners, this refers to the impact of the research findings on the ability to reduce or prevent violence against healthcare and its impact on patients, medical staff and society more widely. For policymakers, this refers to impact of research findings in developing new or existing policies that are more effective in reducing the prevalence and/or impact of violence against healthcare. For researchers, this refers to the impact of research findings on the ability to develop and/or implement future research projects that provide further insights into violence against healthcare. Note that this category differs from the usability of research in its focus on the impact of research in its application by different stakeholders. For example, it may be easy to translate research findings into real-world applications (usability) but with an expected low impact (scale of impact). or conversely, it may be difficult to translate research findings into real-world applications (usability) but, if achieved, the expected impact would be high (scale of impact).	1 = No impact. The research findings will not improve existing knowledge or practice. 2 = Slight impact. The research findings may lead to small, incremental improvements in reducing, managing and/or understanding violence against healthcare. 3 = Moderate impact. The research findings may lead to greater improvements in reducing, managing and/or understanding violence against healthcare, although these improvements are not considered game-changing. 4 = Substantial impact. The research findings may lead to substantial improvements in reducing, managing and/or understanding violence against healthcare. These improvements are considered to be a step-change compared to existing knowledge or practice. 5 = Ground-breaking research. The research findings may lead to highly significant improvements in reducing, managing and/or understanding violence against healthcare. These improvements are considered game-changing within the field.
Transferability of results	This category considers the degree to which the research findings may be applied to different contexts within the healthcare domain, including different geographic locations, different cultural and security environments, and different medical contexts. Are the research results relevant to a specific local context, or are they applicable more broadly?	1 = Non-transferable. The research findings are applicable to the specific local context only. 2 = Difficult to transfer. The research findings are largely context-specific, and cannot easily be applied to different contexts without significant adaptation. 3 = Somewhat transferable. The research findings may be applied more broadly to different contexts, but still need to be tailored to each local environment. 4 = Widely transferable. The research findings may be readily applied to different context with few edits required to tailor to the local environment. 5 = Global relevance. The research has global relevance and is applicable in any context.

Time to impact	This category corresponds to the expected length of time between the delivery of research findings and real-world impacts for relevant stakeholders. Given that the impact of any research output may be spread across an extended period of time, this refers in particular to the period of time between research delivery and the point at which research impact is expected to be at its greatest.	1 = Less than 1 year. 2 = 1 to 2 years. 3 = 2 to 5 years. 4 = Greater than 5 years.

Table 28. Suggested implementation criteria

Category	Description	Scale
Cost of implementation	This category refers to the overall cost of implementing the research, focusing primarily on financial cost that is linked directly to areas such as level of human resourcing, technical requirements, length of time for delivery, level of risk, etc. The cost of implementation is assumed for a reasonable scoping of research based on current approximate market rates.	1 = No cost. The research may be implemented with no resource requirement and/or a reliance on free or open-source resources. 2 = Low cost. The research requires few resources and may be implemented at very low cost. Approximate financial value is less than €100K. 3 = Moderate cost. The research requires a more substantial level of resources and would be difficult to implement on an extremely low budget, but nonetheless does not require high levels of investment in order to produce meaningful results. Approximate financial value between €100K and €250K. 4 = Considerable cost. The research requires a high level of resources, and cannot be implemented easily on a lower budget without risking the quality of research. Approximate financial value between €250K and €500K. 5 = High cost. The research requires an extremely high level of resourcing, and cannot be implemented on even a moderate budget without risking the quality of research. Approximate financial value is greater than €500K.
Barriers to implementation	This category refers to non-financial factors that may impede the delivery of research. This includes difficulties in accessing relevant expertise, difficulties in accessing data, political barriers to implementation, ethical barriers to implementation, and other barriers to implementation where relevant.	1 = No barriers to implementation. Research should be implementable with no additional challenges that impede its delivery. 2 = Few barriers to implementation. Research should be implementable with few challenges. Any barriers to implementation would be relatively easy to overcome. 3 = Moderate barriers to implementation. Research as a whole should be implementable, although a number of barriers to implementation exist that must first be overcome. It is expected that these barriers should be overcome given sufficient resources. 4 = Substantial barriers to implementation. Research would be extremely difficult to implement given existing barriers to implementation, although it may nonetheless be possible to implement the research given the right circumstances and/or investment. 5= Complete barriers to implementation. It would not be possible to implement this research given the existing constraints.

Time to delivery	This category corresponds to the length of time required to deliver the research, referring specifically to the time period between commencing research and delivering final research outputs.	1 = less than 1 year 2 = 1 to 2 years 3 = 2 to 5 years 4 = greater than 5 years

Annex D. List of interviewees

In total, the research team conducted 12 interviews with 13 interviewees. The list of interviewees provided in Table 31 only includes individuals who provided written consent for inclusion in the report, either by name and/or organisational affiliation/job roles.

Table 29. List of interviewees and organisational affiliations

#	Name	Organisational affiliation and/or job role
1	Anonymous	Department for International Development (DFID), UK
2	Anonymous	Public health researcher, Johns Hopkins University
3	Anonymous	Emergency physician, researcher on health and human rights
4	Anonymous	Department for International Development (DFID), UK
5	Anonymous	Nurse, humanitarian aid worker, public health lecturer
6	Anonymous	Manager in international aid organisation
7	Anonymous	Health researcher, American University of Beirut
8	Dr Omar Dewachi	Associate Professor of Critical Medical Anthropology, Department of Anthropology, Rutgers University
9	Anonymous	Researcher on education and humanitarian aid in conflict environments
10	Christina Wille	Managing director of Insecurity Insight and Aid in Danger Project, co-founder of Security in Numbers Database (SiND)
11	Anonymous	Researcher on medical anthropology, international development and humanitarian aid
12	Anonymous	Researcher on healthcare
13	Anonymous	Charity director (education)
14	Anonymous	Clinician and researcher on healthcare in conflict areas
15	Anonymous	NGO representative with a focus on violence against healthcare in conflict areas

Annex E. Backgrounds of STREAM participants

The STREAM workshop was carried out by senior researchers at RAND Europe with backgrounds in either health and/or research. Although their participation in the workshop is anonymised, the background of participants is provided in Table 30 to enable readers to understand more clearly the experiences and perspectives that shape the prioritisation scores presented in Chapter 4.

Table 30. Background of STREAM workshop participants

#	Name	Background
1	Anonymous	Researcher in security policy with a focus on the Middle East
2	Anonymous	Public health researcher with extensive experience in UK government
3	Anonymous	Defence and security researcher with practitioner experience in supporting and delivering humanitarian aid
4	Anonymous	Health researcher with experience in research ethics and research prioritisation
5	Anonymous	Health researcher with a focus on primary care
6	Anonymous	Defence and security researcher with a focus on human security and counterterrorism
7	Anonymous	Health researcher with a focus on public health, including the intersection between healthcare and the criminal justice system

Annex F. Additional information on literature review method

This annex contains additional information on the literature review method. This complements the description provided in Section 1, and covers:

- Search strings used to search CINAHL, SCOPUS and PubMed literature databases as part of the structured literature review (Table 31).
- Search strings and number of hits for Google and Google Scholar searches in English, French, Spanish, Chinese and Arabic (Tables 32 to Table 36).
- Inclusion/exclusion criteria (Table 37).

Table 31. Search strings used in protocol-driven searches of CINAHL, SCOPUS and PubMed literature databases

Database	Field(s) searched	Search string used
CINAHL	title	TI ((violen* OR terroris* OR war OR conflict OR attack* OR bombing OR strike OR destr* OR shooting OR aggress* OR assault OR "physical abuse" OR "sexual abuse" OR "emotional abuse" OR "psychological abuse" OR threat OR intimidat* OR harass* OR kidnap* OR kill* OR rape OR theft OR robbery OR abduct* OR crime OR arrest OR blockade OR disrupt*) N3 (hospital* OR clinic OR infirmary OR "A&E" OR "accident and emergency" OR "ER" OR "emergency room" OR "emergency department" "service delivery point"))) NOT TI (("cardiac arrest" or "heart arrest" OR "cardiopulmonary arrest" OR "cardio-pulmonary arrest" OR "heart attack" OR "ischemic attack"))
CINAHL	Title	TI (violen* OR terroris* OR war OR conflict OR attack* OR bombing OR strike OR destr* OR shooting OR aggress* OR assault OR "physical abuse" OR "sexual abuse" OR "emotional abuse" OR "psychological abuse" OR threat OR intimidat* OR harass* OR kidnap* OR kill* OR rape OR theft OR robbery OR abduct* OR crime OR arrest OR blockade OR disrupt*) N3 (doctor OR GP OR "general practitioner" OR nurse OR medic OR paramedic OR surgeon OR physician OR EMS or "emergency medical services" OR patient OR wounded OR injured OR sick OR casualt* OR ambulance) NOT TI (("cardiac arrest" or "heart arrest" OR "cardiopulmonary arrest" OR "cardio-pulmonary arrest" OR "heart attack" OR "ischemic attack"))
CINAHL	title	TI (violen* OR terroris* OR war OR conflict OR attack* OR bombing OR strike OR destr* OR shooting OR aggress* OR assault OR "physical abuse" OR "sexual abuse" OR "emotional abuse" OR "psychological abuse" OR threat OR intimidat* OR harass* OR kidnap* OR kill* OR rape OR theft OR robbery OR abduct* OR crime OR arrest OR blockade OR disrupt*) N3 (healthcare OR "health care" OR health OR medical) NOT TI (("cardiac arrest" or "heart arrest" OR "cardiopulmonary arrest" OR "cardio-pulmonary arrest" OR "heart attack" OR "ischemic attack"))
CINAHL	ab	AB ((violen* OR terroris* OR war OR conflict OR attack* OR bombing OR strike OR destr* OR shooting OR aggress* OR assault OR "physical abuse" OR "sexual abuse" OR "emotional abuse" OR "psychological abuse" OR threat OR intimidat* OR harass* OR kidnap* OR kill* OR rape OR theft OR robbery OR abduct* OR crime OR arrest OR blockade OR disrupt*) N3 (hospital* OR clinic OR infirmary OR "A&E" OR "accident and emergency" OR "ER" OR "emergency room" OR "emergency department" "service delivery point")) NOT AB (("cardiac arrest" or "heart arrest" OR "cardiopulmonary arrest" OR "cardio-pulmonary arrest" OR "heart attack" OR "ischemic attack"))
CINAHL	ab	AB ((violen* OR terroris* OR war OR conflict OR attack* OR bombing OR strike OR destr* OR shooting OR aggress* OR assault OR "physical abuse" OR "sexual abuse" OR "emotional abuse" OR "psychological abuse" OR threat OR intimidat* OR harass* OR kidnap* OR kill* OR rape OR theft OR robbery OR abduct* OR crime OR arrest OR blockade OR disrupt*) N3 (doctor OR GP OR "general practitioner" OR nurse OR medic OR paramedic OR surgeon OR physician OR EMS or "emergency medical services" OR patient OR wounded OR injured OR sick OR casualt* OR ambulance) NOT AB (("cardiac arrest" or "heart arrest" OR "cardiopulmonary arrest" OR "cardio-pulmonary arrest" OR "heart attack" OR "ischemic attack"))
CINAHL	ab	AB (violen* OR terroris* OR war OR conflict OR attack* OR bombing OR strike OR destr* OR shooting OR aggress* OR assault OR "physical abuse" OR "sexual abuse" OR "emotional abuse" OR "psychological abuse" OR threat OR intimidat* OR harass* OR kidnap* OR kill* OR rape OR theft OR robbery OR abduct* OR crime OR arrest OR blockade OR disrupt*) N3 (healthcare OR "health care" OR health OR medical) NOT AB (("cardiac arrest" or "heart arrest" OR "cardiopulmonary arrest" OR "cardio-pulmonary arrest" OR "heart attack" OR "ischemic attack"))

SCOPUS	title	((TITLE (violen* OR terroris* OR war OR conflict OR attack* OR bombing OR strike OR destr* OR shooting OR aggress* OR assault OR "physical abuse" OR "sexual abuse" OR "emotional abuse" OR "psychological abuse" OR threat OR intimidat* OR harass* OR kidnap* OR kill* OR rape OR theft OR robbery OR abduct* OR crime OR arrest OR blockade OR disrupt*) AND PUBYEAR AFT 2008) AND NOT (TITLE ("cardiac arrest" OR "heart arrest" OR "cardiopulmonary arrest" OR "cardio-pulmonary arrest" OR "heart attack" OR "ischemic attack" OR cardi* OR) AND PUBYEAR AFT 2008)) AND (TITLE (hospital* OR clinic OR infirmary OR {A&E} OR {accident and emergency} OR {ER} OR "emergency room" OR "emergency department" OR "service delivery point") AND PUBYEAR AFT 2008) AND (LIMIT-TO (PUBYEAR, 2019) OR LIMIT-TO (PUBYEAR, 2018) OR LIMIT-TO (PUBYEAR, 2017) OR LIMIT-TO (PUBYEAR, 2016) OR LIMIT-TO (PUBYEAR, 2015) OR LIMIT-TO (PUBYEAR, 2014) OR LIMIT-TO (PUBYEAR, 2013) OR LIMIT-TO (PUBYEAR, 2012) OR LIMIT-TO (PUBYEAR, 2011))
SCOPUS	title	((TITLE (violen* OR terroris* OR war OR conflict OR attack* OR bombing OR strike OR destr* OR shooting OR aggress* OR assault OR "physical abuse" OR "sexual abuse" OR "emotional abuse" OR "psychological abuse" OR threat OR intimidat* OR harass* OR kidnap* OR kill* OR rape OR theft OR robbery OR abduct* OR crime OR arrest OR blockade OR disrupt*) AND PUBYEAR AFT 2008) AND NOT (TITLE ("cardiac arrest" OR "heart arrest" OR "cardiopulmonary arrest" OR "cardio-pulmonary arrest" OR "heart attack" OR "ischemic attack" OR card* OR ischaemic OR ischemic) AND PUBYEAR AFT 2008)) AND (TITLE (doctor OR gp OR "general practitioner" OR nurse OR medic OR paramedic OR surgeon OR physician OR ems OR "emergency medical services" OR patient OR wounded OR injured OR sick OR casualt* OR ambulance) AND PUBYEAR AFT 2008)
SCOPUS	title	((TITLE (violen* OR terroris* OR war OR conflict OR attack* OR bombing OR strike OR destr* OR shooting OR aggress* OR assault OR "physical abuse" OR "sexual abuse" OR "emotional abuse" OR "psychological abuse" OR threat OR intimidat* OR harass* OR kidnap* OR kill* OR rape OR theft OR robbery OR abduct* OR crime OR arrest OR blockade OR disrupt*) AND PUBYEAR AFT 2008) AND NOT (TITLE ("cardiac arrest" OR "heart arrest" OR "cardiopulmonary arrest" OR "cardio-pulmonary arrest" OR "heart attack" OR "ischemic attack") AND PUBYEAR AFT 2008)) AND (TITLE (healthcare OR "health care" OR health OR medical) AND PUBYEAR AFT 2008)
SCOPUS	abstract	(ABS (violen* OR terroris* OR war OR conflict OR attack* OR bombing OR strike OR destr* OR shooting OR aggress* OR assault OR "physical abuse" OR "sexual abuse" OR "emotional abuse" OR "psychological abuse" OR threat OR intimidat* OR harass* OR kidnap* OR kill* OR rape OR theft OR robbery OR abduct* OR crime OR arrest OR blockade OR disrupt*) W/3 ABS (hospital* OR clinic OR infirmary OR "A&E" OR "accident and emergency" OR "ER" OR "emergency room" OR "emergency department" OR "service delivery point") AND PUBYEAR AFT 2008) AND NOT (ABS (("cardiac arrest" OR "heart arrest" OR "cardiopulmonary arrest" OR "cardio-pulmonary arrest" OR "heart attack" OR "ischemic attack")))
PubMed	title	Search ((((((hospital*[Title] OR clinic[Title] OR infirmary[Title] OR "A&E"[Title] OR "accident"[Title] AND "emergency"[Title] OR "ER"[Title] OR "emergency room"[Title] OR "emergency department"[Title] OR "service delivery point"[Title])))) AND ((((((((((((war[Title] OR conflict[Title] OR attack[Title] OR attacks[Title] OR attacked[Title] OR attacker[Title] OR bombing[Title] OR strike[Title] OR destruction[Title] OR destroy[Title] OR destroyed[Title])))) OR ((terrorist[Title] OR terrorists[Title] OR terrorism[Title])))) OR (violent[Title] OR violence[Title])))) OR ((shooting[Title] OR aggressor[Title] OR aggression[Title] OR aggressors[Title] OR assault[Title])))) OR (("physical abuse"[Title] OR "sexual abuse"[Title] OR "emotional abuse"[Title] OR "psychological abuse"[Title])))) OR (threat[Title] OR threats[Title] OR threaten[Title] OR threatening[Title] OR threatens[Title] OR intimidate[Title] OR intimidated[Title] OR intimidation[Title] OR intimidating[Title] OR intimidates[Title] OR harassment[Title] OR harass[Title] OR harassed[Title] OR harassing[Title])))) OR (kidnapping[Title] OR kidnappings[Title] OR kidnaper[Title] OR kidnapers[Title] OR kidnap[Title] OR kidnapped[Title] OR killing[Title] OR killings[Title] OR killer[Title] OR killers[Title] OR kill[Title] OR killed[Title] OR kills[Title] OR rape[Title] OR theft[Title] OR robbery[Title] OR abducted[Title] OR abduct[Title] OR abducter[Title] OR abductors[Title] OR abduction[Title] OR abductions[Title] OR crime[Title] OR crimes[Title] OR arrest[Title] OR blockade[Title] OR disruptive[Title] OR disrupt[Title] OR disruption[Title] OR disruptions[Title])))) AND ("2009/01/01"[PDat] : "2019/12/31"[PDat])))) NOT (cardiac[Title] OR cardiopulmonary[Title] OR ischemic[Title] OR cardi*[title]) Filters: Publication date from 2009/01/01 to 2019/12/31

PubMed	title	Search ((((doctor[Title] OR doctors[Title] OR GP[Title] OR "general practitioner"[Title] OR nurse[Title] OR nurses[Title] OR medics[Title] OR medic[Title] OR paramedic[Title] OR paramedics[Title] OR surgeon[Title] OR surgeons[Title] OR physicians[Title] OR physician[Title] OR EMS[Title] OR "emergency medical services"[Title] OR patient[Title] OR patients[Title] OR wounded[Title] OR injured[Title] OR sick[Title] OR casualt*[Title] OR ambulance[Title])) AND ("2009/01/01"[PDat] : "2019/12/31"[PDat]))) AND ((((violent[Title] OR violence[Title] OR terrorist[Title] OR terrorists[Title] OR terrorism[Title] OR war[Title] OR conflict[Title] OR attack[Title] OR attacks[Title] OR attacked[Title] OR attacker[Title] OR bombing[Title] OR strike[Title] OR destruction[Title] OR destroy[Title] OR destroyed[Title] OR shooting[Title] OR aggressor[Title] OR aggression[Title] OR aggressors[Title] OR assault[Title] OR "physical abuse"[Title] OR "sexual abuse"[Title] OR "emotional abuse"[Title] OR "psychological abuse"[Title] OR threat[Title] OR threats[Title] OR threaten[Title] OR threatening[Title] OR threatens[Title] OR intimidate[Title] OR intimidated[Title] OR intimidation[Title] OR intimidating[Title] OR intimidates[Title] OR harassment[Title] OR harass[Title] OR harassed[Title] OR harassing[Title] OR kidnapping[Title] OR kidnappings[Title] OR kidnapper[Title] OR kidnappers[Title] OR kidnap[Title] OR kidnapped[Title] OR killing[Title] OR killings[Title] OR killer[Title] OR killers[Title] OR kill[Title] OR killed[Title] OR kills[Title] OR rape[Title] OR theft[Title] OR robbery[Title] OR abducted[Title] OR abduct[Title] OR abductor[Title] OR abductors[Title] OR abduction[Title] OR abductions[Title] OR crime[Title] OR crimes[Title] OR arrest[Title] OR blockade[Title] OR disruptive[Title] OR disrupt[Title] OR disruption[Title] OR disruptions[Title])) NOT (("cardiac arrest"[Title] OR "heart arrest"[Title] OR "cardiopulmonary arrest"[Title] OR "cardio-pulmonary arrest"[Title] OR "heart attack"[Title] OR "ischemic attack"[Title] OR (cardi*[Title] OR cardiopulmonary[Title] OR ischemic[Title] OR ischaemic[title])) AND ("2009/01/01"[PDat] : "2019/12/31"[PDat])) Filters: Publication date from 2009/01/01 to 2019/12/31
PubMed	title	Search (((((violent[Title] OR violence[Title] OR terrorist[Title] OR terrorists[Title] OR terrorism[Title] OR war[Title] OR conflict[Title] OR attack[Title] OR attacks[Title] OR attacked[Title] OR attacker[Title] OR bombing[Title] OR strike[Title] OR destruction[Title] OR destroy[Title] OR destroyed[Title] OR shooting[Title] OR aggressor[Title] OR aggression[Title] OR aggressors[Title] OR assault[Title] OR "physical abuse"[Title] OR "sexual abuse"[Title] OR "emotional abuse"[Title] OR "psychological abuse"[Title] OR threat[Title] OR threats[Title] OR threaten[Title] OR threatening[Title] OR threatens[Title] OR intimidate[Title] OR intimidated[Title] OR intimidation[Title] OR intimidating[Title] OR intimidates[Title] OR harassment[Title] OR harass[Title] OR harassed[Title] OR harassing[Title] OR kidnapping[Title] OR kidnappings[Title] OR kidnapper[Title] OR kidnappers[Title] OR kidnap[Title] OR kidnapped[Title] OR killing[Title] OR killings[Title] OR killer[Title] OR killers[Title] OR kill[Title] OR killed[Title] OR kills[Title] OR rape[Title] OR theft[Title] OR robbery[Title] OR abducted[Title] OR abduct[Title] OR abductor[Title] OR abductors[Title] OR abduction[Title] OR abductions[Title] OR crime[Title] OR crimes[Title] OR arrest[Title] OR blockade[Title] OR disruptive[Title] OR disrupt[Title] OR disruption[Title] OR disruptions[Title])) NOT (("cardiac arrest"[Title] OR "heart arrest"[Title] OR "cardiopulmonary arrest"[Title] OR "cardio-pulmonary arrest"[Title] OR "heart attack"[Title] OR "ischemic attack"[Title] OR cardi*[title] OR ischemic[title] OR ischaemic[title])) AND ("2009/01/01"[PDat] : "2019/12/31"[PDat]))) AND (((healthcare [Title] OR "health care" [Title] OR health [Title] OR medical[Title])) AND ("2009/01/01"[PDat] : "2019/12/31"[PDat])) Filters: Publication date from 2009/01/01 to 2019/12/31

Table 32. Search strings used in Google and Google Scholar searches (English)

Search string	Search engine	Number of pages reviewed	Number of relevant hits
violence against healthcare	Google Scholar	3	21
trends of violence against healthcare workers and facilities	Google	3	16
aggression healthcare	Google Scholar	3	16
cyber attacks healthcare	Google	3	10
aggression violence healthcare	Google Scholar	3	10
database violence against medical professionals	Google	3	8
attack on medical infrastructure	Google	3	7
aggression violence healthcare	Google	3	7
terrorism against healthcare	Google	3	7
attack on hospital	Google	3	7
harass medical staff	Google	3	6
violence against paramedics	Google	3	6
theft robbery healthcare	Google Scholar	3	5
bombing clinic	Google	3	4
denial of medical service to a population	Google	3	4
database on violence against healthcare	Google	3	4
theft robbery healthcare	Google	3	3
war healthcare blocking	Google	3	3
denial medical service violence	Google	3	3
healthcare workplace violence statistics 2018	Google	3	3
terrorism against medical	Google Scholar	3	3
attack on healthcare conflict	Google Scholar	3	3
obstruct healthcare delivery	Google Scholar	3	3
killing doctors terrorism	Google	3	2
terrorism against healthcare	Google Scholar	3	2
attack on medical infrastructure	Google Scholar	3	2
assault hospital	Google Scholar	3	2
abuse hospital	Google Scholar	3	2
healthcare interference	Google	3	1
kidnap doctor	Google	3	1
intimidate medical staff	Google	3	1
database statistics violence against healthcare workers	Google	3	1
healthcare interference	Google Scholar	3	1
assault hospital	Google	3	0
injure doctor	Google	3	0
war healthcare blocking	Google Scholar	3	0
blocking healthcare	Google Scholar	3	0
blocking healthcare provision	Google Scholar	3	0
attack on hospital	Google Scholar	3	0

Number of snowballing searches: 1. Number of hits from snowballing search: 12

Table 33. Search strings used in Google and Google Scholar searches (French)

Search string	Search engine	Number of pages reviewed	Number of relevant hits
Violence contre services de santé	Google, Google Scholar	8	8
Destruction guerre conflit services de santé	Google, Google Scholar	8	6
Violence OR terroris* OR guerre OR conflit OR attaque OR fusillade OR destr* OR assaut AND "services de santé" OR "soins médicaux" OR "soins de santé" OR médic*	Google, Google Scholar	7	3
Violence contre soins médicaux	Google, Google Scholar	7	2
Attaque assault services de santé	Google, Google Scholar	5	2
Violence contre paramédical chirurgien ambulance	Google, Google Scholar	5	2
Violence OR arrestation OR bloquer OR réduction OR interférence AND hôpital OR consultation* OR "service médical d'urgence" OR "cabinet médical" OR infirmerie	Google, Google Scholar	6	2
Violence contre hôpital cabinet médical infirmerie	Google, Google Scholar	3	1
Recherches sur la violence faite aux services de santé	Google, Google Scholar	5	1
Comment prévenir éviter la violence faite aux services de santé	Google, Google Scholar	2	1
Violence OR aggress* OR abus OR harcèlement OR kidnap* OR tuer OR vol OR larcin OR violer OR crime AND "services de santé" OR "soins médicaux" OR "soins de santé" OR médic*	Google, Google Scholar	6	1
Violence OR terroris* OR guerre OR conflit OR attaque OR fusillade OR destr* OR assaut AND docteur OR infirmier OR infirmière OR médecin OR chirurgien OR paramédica	Google, Google Scholar	7	1
Violence OR aggress* OR abus OR harcèlement OR kidnap* OR tuer OR vol OR larcin OR violer OR crime AND docteur OR infirmier OR infirmière OR médecin OR chirurgien OR paramédica	Google, Google Scholar	6	1
Attaque assault soins médicaux	Google, Google Scholar	3	0
Agression abus contre services de santé	Google, Google Scholar	3	0
Agression abus contre soins médicaux	Google, Google Scholar	2	0
Harcèlement crime vol contre services de santé	Google, Google Scholar	2	0
Arrestation réduction interférence services de santé	Google, Google Scholar	3	0
Violence contre docteur médecins infirmier	Google, Google Scholar	3	0
études sur la violence faite aux services de santé	Google, Google Scholar	5	0
L'impact de la violence faite aux services de santé	Google, Google Scholar	5	0
Comment réduire atténuer la violence faite aux services de santé	Google, Google Scholar	3	0
Violence OR arrestation OR bloquer OR réduction OR interférence AND "services de santé" OR "soins médicaux" OR "soins de santé" OR médic*	Google, Google Scholar	5	0
Violence OR terroris* OR guerre OR conflit OR attaque OR fusillade OR destr* OR assaut AND hôpital OR consultation* OR "service médical d'urgence" OR "cabinet médical" OR infirmerie	Google, Google Scholar	2	0
Violence OR aggress* OR abus OR harcèlement OR kidnap* OR tuer OR vol OR larcin OR violer OR crime AND hôpital OR consultation* OR "service médical d'urgence" OR "cabinet médical" OR infirmerie	Google, Google Scholar	2	0
Violence OR arrestation OR bloquer OR réduction OR interférence AND docteur OR infirmier OR infirmière OR médecin OR chirurgien OR paramédical	Google, Google Scholar	4	0
Violence OR terroris* OR guerre OR conflit OR attaque OR fusillade OR destr* OR assaut AND patient OR blessé OR ambulance OR malade OR victim*	Google, Google Scholar	2	0
Violence OR aggress* OR abus OR harcèlement OR kidnap* OR tuer OR vol OR larcin OR violer OR crime AND patient OR blessé OR ambulance OR malade OR victim*	Google, Google Scholar	2	0
Violence OR arrestation OR bloquer OR réduction OR interférence AND patient OR blessé OR ambulance OR malade OR victim*	Google, Google Scholar	2	0

Table 34. Search strings used in Google and Google Scholar searches (Spanish)

Search string	Search engine	Number of pages reviewed	Number of relevant hits
"estudios sobre violencia en hospitals"	Google, Google Scholar	10	28
"Violencia en el ambito sanitario"	Google, Google Scholar	10	18
"Violencia en el sector sanitario"	Google, Google Scholar	8	11
"Violencia geriatrica en sanitarios"	Google, Google Scholar	10	8
"Violencia contra profesionales de la salud"	Google, Google Scholar	6	7
"agresiones en el ambito sanitario"	Google, Google Scholar	10	5
"Violencia en atencion primaria"	Google, Google Scholar	4	4
"crisis de salud publica"	Google, Google Scholar	10	3
"Violencia contra personal sanitario"	Google, Google Scholar	5	2
"Violencia contra pacientes"	Google, Google Scholar	10	2
"Violencia hospitalaria"	Google, Google Scholar	10	2
"mal trato hospitalario"	Google, Google Scholar	10	1
"violencia institucional en el ambito sanitario"	Google, Google Scholar	1	0

Table 35. Search strings used in Google and Google Scholar searches (Chinese)

Search string	Search engine	Number of pages reviewed	Number of relevant hits
医疗暴力	Google	5	20
医疗暴力	Baidu	5	18
攻击医疗冲突 中国	Google	5	8
暴力侵害医疗保健人员	Google	5	7
(暴力侵害医疗保健)	Google	5	4
2018年医疗场所暴力统计	Baidu	5	4
医疗保健侵害	Google	5	0
"对医疗基础设施的攻击"	Google	5	0
关于暴力侵害医疗保健的数据库	Baidu	5	0
医疗暴力的数据库	Baidu	5	0

Table 36. Search strings used in Google and Google Scholar searches (Arabic)

Search string	Search engine	Number of pages reviewed	Number of relevant hits
العنف ضد الرعاية الصحية	Google	5	4
العنف ضد الرعاية الصحية في الدول العربية	Google	5	3
العنف ضد الرعاية الصحية filetype:pdf	Google	5	2
سياسات العنف ضد الرعاية الصحية للدول العربية	Google	5	1
العنف ضد الرعاية الصحية في العراق	Google	5	1
العنف ضد الرعاية الصحية في الدول العربية filetype:pdf	Google	5	1
سياسات العنف ضد الرعاية الصحية للدول العربية filetype:pdf	Google	5	1
العنف ضد الرعاية الصحية في اليمن	Google	5	1
العنف ضد الرعاية الصحية في سوريا	Google	5	1

Table 37. Inclusion/exclusion criteria

Criteria	Inclusion criteria	Exclusion criteria
Relevance to the research questions	Focus (all or in part) on both 1) violence and 2) against healthcare Provides some form of analysis relating to either the nature (RQ1), impact (RQ2) and/or interventions against (RQ3) violence against healthcare Goes beyond simply reporting on one or more incident	Does not include information on 1) violence and/or 2) against healthcare, as defined in Chapter 2 Does not provide analysis relating on either the nature (RQ1), impact (RQ2) or interventions against (RQ3) violence against healthcare Simply reports on incident(s)
Type of literature	Academic (peer-reviewed articles and editorials, perspectives and letters to editors where original research is presented) Grey literature sources (including research papers and government reports)	Conference proceedings, PowerPoint slides, Masters and PhD theses Editorials, perspectives and letters to editors where original research is not presented Grey literature sources that report on incidents only, or that do not present original research (including – but not limited to – media reports, personal blogs, pamphlets, etc.) Published books
Date of publication	Materials published or made available through open access sources since 2009 (01/01/2009 or after)	Materials published or made available through open access sources before 2009 (3112/2008 or before)
Language	English, French, Spanish, Arabic and Chinese	All other languages
Geographic location	All sources	No sources
Availability of information	Sources where full texts are available, or when unavailable, where sufficient information is provided in abstract to complete data extraction (based on RAND Europe access)	Where full texts are unavailable, sources with insufficient information in abstract to complete data extract (based on RAND Europe access)

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