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Ethical Dilemmas Faced by Physicians During Healthcare Crisis : A Systematic Review of Reviews

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Abstract

Healthcare crises, such as pandemics, infectious disease outbreaks, and other large-scale emergencies, place significant pressure on healthcare systems and pose complex ethical challenges for physicians. This study aimed to synthesize and analyze the existing literature to identify ethical dilemmas encountered by physicians during healthcare crises. An umbrella review was conducted using PubMed, Scopus, and Google Scholar to identify relevant review articles published between 2000 and 2025. Predefined inclusion and exclusion criteria were applied to ensure relevance to ethical issues in healthcare crises. A total of 714 records were identified, and after screening and full-text assessment, 15 review articles were included in the final analysis. Data were extracted and analyzed using a narrative synthesis approach.

The findings of this review indicate that ethical dilemmas commonly occur in situations where healthcare resources are limited and clinical decisions must be made under pressure. The most commonly identified challenges included allocation of scarce medical resources, triage and patient prioritization, professional responsibilities and duty to care, and difficulties maintaining patient autonomy and end-of-life communication. The reviewed studies additionally emphasized the emotional and moral burden experienced by healthcare professionals when making ethically complex decisions during crises.

Overall, the findings suggest that ethical dilemmas in healthcare crises are influenced by both clinical and systemic factors. The presence of clear ethical guidelines, structured decision-making frameworks, and institutional support may help healthcare professionals manage these challenges more effectively.

In conclusion, ethical challenges are an inherent part of healthcare crises, and improving ethical preparedness within healthcare systems may support better decision-making and improve the quality of care during healthcare emergencies.

Santrauka

Sveikatos priežiūros krizės, tokios kaip pandemijos, infekcinių ligų protrūkiai ir kitos plataus masto sveikatos priežiūros ekstremalios situacijos, sukelia didelį spaudimą sveikatos priežiūros sistemoms ir kelia sudėtingus etinius iššūkius gydytojams. Šio tyrimo tikslas buvo apibendrinti ir išanalizuoti esamą apžvalginę literatūrą, siekiant nustatyti etines dilemas, su kuriomis gydytojai susiduria sveikatos priežiūros krizių metu. Buvo atlikta skėtinių apžvalgų analizė (umbrella review), naudojant „PubMed“, „Scopus“ ir „Google Scholar“ duomenų bazes, siekiant identifikuoti aktualius apžvalginius straipsnius, publikuotus 2000–2025 metais. Siekiant užtikrinti atitiktį etinėms problemoms sveikatos priežiūros krizių metu, buvo taikyti iš anksto nustatyti įtraukimo ir neįtraukimo kriterijai. Iš viso buvo identifikuota 714 įrašų, o po atrankos ir viso teksto vertinimo į galutinę analizę buvo įtraukti 15 apžvalginių straipsnių. Duomenys buvo renkami ir analizuojami taikant naratyvinės sintezės metodą.

Tyrimo rezultatai parodė, kad etinės dilemos dažniausiai kyla situacijose, kai sveikatos priežiūros ištekliai yra riboti ir klinikiniai sprendimai turi būti priimami esant spaudimui. Dažniausiai nustatyti iššūkiai buvo ribotų medicininių išteklių paskirstymas, pacientų rūšiavimas ir prioritetų nustatymas, profesinė atsakomybė ir pareiga teikti pagalbą bei sunkumai užtikrinant pacientų autonomiją ir komunikaciją gyvenimo pabaigos priežiūros metu. Apžvelgtuose tyrimuose taip pat buvo pabrėžta emocinė ir moralinė našta, kurią patiria sveikatos priežiūros specialistai priimdami etiškai sudėtingus sprendimus krizinių situacijų metu.

Apibendrinant galima teigti, kad etines dilemas sveikatos priežiūros krizių metu lemia tiek klinikiniai, tiek sisteminiai veiksniai. Aiškių etinių gairių, struktūruotų sprendimų priėmimo sistemų ir institucinės paramos buvimas gali padėti sveikatos priežiūros specialistams veiksmingiau susidoroti su šiais iššūkiais. Galiausiai, etiniai iššūkiai yra neatsiejama sveikatos priežiūros krizių dalis, o geresnis etinis pasirengimas sveikatos priežiūros sistemose gali prisidėti prie geresnių sprendimų priėmimo ir sveikatos priežiūros kokybės gerinimo ekstremalių situacijų metu.

Keywords:

medical ethics; healthcare crises; ethical dilemmas; pandemics; disaster medicine; resource allocation; triage

Abbreviations

AMSTAR 2 – A Measurement Tool to Assess Systematic Reviews 2

CEC – Clinical Ethics Committee

COVID-19 – Coronavirus Disease 2019

ICU – Intensive Care Unit

PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-Analyses

PPE – personal protective equipment

WHO – World Health Organization

1. Introduction

Healthcare crises are situations in which the normal functioning of healthcare systems is markedly disrupted, calling for rapid adaptation of clinical practice under conditions of uncertainty, resource limitation, and rising demand for care. In the context of this study, the term *healthcare crisis* refers primarily to large-scale public health emergencies, such as pandemics and other events that substantially affect medical services and clinical decision-making at the systemic level. Such conditions may create circumstances in which standard medical practice cannot be fully maintained.

These circumstances place physicians at the forefront of clinical decision-making, requiring them to balance competing ethical principles in complex, often time-sensitive situations. Under normal conditions, medical ethics is guided by principles such as autonomy, beneficence, non-maleficence, and justice. However, during healthcare crises, these principles may come into conflict, requiring physicians to make decisions that do not fully satisfy all ethical considerations. For example, resource limitations, such as intensive care unit (ICU) beds, ventilators, or medical personnel,l may necessitate patient prioritizations, raising ethical concerns about fairness, equality, and distributive justice in healthcare (25,31,34).

This study focused specifically on physicians because they are usually the ones making key clinical decisions during healthcare crises. In situations such as pandemics or other healthcare emergencies, physicians often have to make difficult decisions about treatment priorities, limited resources, and patient care under pressure. Although crisis response involves many healthcare professionals, physicians are typically responsible for the final clinical decision-making process. Examining these situations from the perspective of physicians helps provide a better understanding of the ethical difficulties that may arise in crisis conditions.

Recent global developments, particularly the COVID-19 pandemic, have further brought to light the complexity and frequency of ethical dilemmas encountered in clinical practice. Healthcare professionals have met challenges related to triage decisions, the allocation of scarce medical resources, restrictions on patient communication, and the balancing of individual patient rights together with broader public health priorities (25,32,33,35). These situations demonstrate that ethical decision-

making during healthcare crises differs significantly from routine clinical practice and often requires adaptation of existing ethical frameworks.

Although ethical dilemmas in healthcare crises have been widely discussed in the literature, existing studies often focus on specific aspects of ethical decision-making or on individual crisis contexts. Consequently, there is still a necessity for a structured synthesis of existing knowledge that integrates findings across several healthcare crisis settings and identifies recurring moral challenges. In addition, previous reviews have not steadily focused specifically on physicians or compared ethical dilemmas through different crisis situations.

To address this gap, the present study uses an umbrella review approach, which involves analyzing findings from previously published review articles. This method makes it possible to examine ethical dilemmas across different healthcare crisis settings and identify common themes reported in the existing literature, rather than focusing only on individual studies or specific events.

Research Question

The main research question guiding this study is:

“What ethical dilemmas do physicians encounter during times of crisis, and in what contexts do these dilemmas arise?”

This question aims to capture both the nature of the ethical dilemmas and the circumstances in which they occur, delivering a comprehensive understanding of how healthcare crises influence clinical decision-making.

Aim and Objectives

Aim

The aim of this study is to systematically synthesize existing review-based literature in order to establish an overview of ethical dilemmas encountered by physicians during healthcare crises.

Objectives

1.To systematically identify ethical dilemmas reported by physicians during healthcare crises, particularly pandemics and large-scale public health emergencies.

2.To examine the nature and scope of these ethical dilemmas, with particular attention to repeated issues such as triage decision-making, allocation of scarce medical resources, patient autonomy, public health responsibilities, and physician moral distress.

3.To explore how healthcare crises influence ethical decision-making in clinical practice, including the challenges created by resource limitations, uncertainty, and competing ethical obligations.

4.To synthesize findings from the existing literature into a well-structured overview that may support the development of ethical guidance and practical recommendations for physicians during future healthcare crises.

2. Literature Review

The following section provides background on ethical dilemmas in healthcare crises and serves to justify the need for the present review. Although several broad ethical domains were identified in the existing literature, the final thematic structure presented in the Results and Discussion sections was developed during the analysis of the included review articles.

2.1 Medical Ethics in Healthcare

Medical ethics plays an important role in clinical decision-making and helps guide physicians in providing responsible patient care. Ethical principles are intended to ensure respect for human dignity, protection of patient rights, and fairness within healthcare systems (1). Modern biomedical ethics is commonly based on four main principles: autonomy, beneficence, non-maleficence, and justice (2).

Autonomy means that patients have the right to make decisions about their own treatment after receiving the necessary medical information. Physicians should respect these decisions and ensure patients understand their condition and treatment options before obtaining consent (2,3). Beneficence refers to acting in a way that benefits the patient, while non-maleficence means avoiding unnecessary

harm (2). Justice is related to fairness in healthcare, including fair distribution of medical resources and equal access to treatment (2,4).

In routine clinical practice, these principles frequently complement each other and guide physicians in resolving ethical issues that arise in patient care. However, in complex clinical situations, in particular those involving uncertainty or limited resources, these principles may come into conflict, requiring physicians to balance competing ethical obligations (2,5). Ethical dilemmas occur when two or more ethical principles cannot be simultaneously satisfied, forcing healthcare professionals to choose between competing values (5).

The growing complexity of modern healthcare systems has increased the frequency of ethical challenges experienced by physicians. Advances in medical technology, limited healthcare resources, and evolving patient expectations have created situations in which ethical decision-making becomes especially difficult (6). However, these principles are often discussed in general clinical contexts and do not fully express the complexity of ethical decision-making in healthcare crises, where standard conditions of care may be disrupted.

2.2 Ethical Dilemmas in Healthcare

Ethical dilemmas are a common part of medical practice and can occur when healthcare professionals must choose between conflicting ethical responsibilities or values. These situations arise when no available option fully satisfies all ethical principles at the same time (7). For example, physicians may experience conflict between respecting a patient's autonomy and acting according to what they believe is best for the patient, especially when a patient refuses recommended treatment (2,3). Similar difficulties may also arise in decisions about withholding or withdrawing life-sustaining treatment in severely ill patients with poor chances of recovery (2).

Ethical challenges may also arise in situations involving confidentiality, informed consent, and communication with patients and their families (2). Physicians often need to balance medical judgment with patient wishes and family expectations (3). Conflicts can also develop between professional responsibilities and institutional limitations, especially when shortages of resources affect clinical decisions (4,6). In these situations, physicians may need to rely on ethical reasoning, discussions with colleagues, or institutional guidance to support decision-making (5).

In modern healthcare systems, ethical dilemmas have become more noticeable because of advances in medical technology and the wider use of life-sustaining treatments (2). Although these developments have improved patient care and survival, they have also created new ethical questions related to the limits of medical treatment, quality of life, and the fair use of healthcare resources (2,4).

Importantly, ethical dilemmas do not always present as clear conflicts between opposing principles. In some situations, particularly in crisis settings, clinicians may operate under conditions of uncertainty and constrained choices, where no option fully aligns with ethical standards. These “gray zone” situations require context-dependent judgment and highlight the complexity of ethical decision-making beyond traditional theoretical frameworks (20). However, such challenges are often described in general terms, and less attention has been given to how they are experienced by physicians across different crisis contexts.

2.3 Healthcare Crises and Disaster Medicine

Healthcare crises, particularly pandemics and other large-scale public health emergencies, can significantly disrupt the normal functioning of healthcare systems and challenge clinicians' ability to deliver standard levels of care (1,8). Disaster medicine focuses on the organization and coordination of medical services in situations where healthcare systems are exposed to sudden increases in demand and operational constraints.

During such events, healthcare institutions may experience a rapid influx of patients, requiring immediate adaptation of clinical practice. This may involve reorganizing hospital services, expanding emergency capacity, and redistributing medical personnel and resources (8,9). In some cases, temporary treatment facilities may be established, and routine clinical procedures may be modified in order to maintain essential services under pressure.

In addition to increased patient volume, healthcare crises may disrupt healthcare infrastructure and communication systems, complicating coordination between hospitals, emergency responders, and public health authorities (8). As a result, effective disaster response depends on preparedness, coordination, and the ability of healthcare systems to function under constrained conditions.

To address these challenges, healthcare systems and international organizations have developed preparedness strategies and emergency response frameworks to improve resilience and maintain continuity of care (1,8,9). However, while these approaches focus primarily on organizational and

logistical aspects, they do not fully address the ethical challenges that arise for physicians when clinical decision-making must be adapted under crisis conditions.

2.4 Ethical Challenges During Pandemics and Disasters

The ethical challenges discussed in the following sections are presented as part of the theoretical and contextual background necessary for understanding ethical decision-making during healthcare crises. These topics were included in the Literature Review because they represent ethical issues widely recognized in medical ethics and crisis medicine. The Results section, in contrast, focuses specifically on the themes that emerged from the analysis of the included review articles and how these challenges were described within the selected literature.

Healthcare crises create conditions in which ethical challenges become more complex and more difficult to resolve. When demand for medical care exceeds available resources, clinicians may be required to prioritize patients and allocate limited treatments (1,4,11).

A major ethical issue in healthcare crises is the shortage of medical resources such as intensive care unit beds, ventilators, and other treatments needed to save lives. In these situations, triage systems may be used to help decide which patients should receive treatment first. The goal is usually to use available resources fairly while helping as many patients as possible. At the same time, these decisions can create conflict between broader public health priorities and the responsibility to care for each patient as an individual (4,10,12).

Healthcare crises may also affect the professional responsibilities of healthcare Professionals. Physicians may be expected to continue providing care despite increased personal risk, particularly during infectious disease outbreaks. This can create ethical uncertainty when balancing professional duties with concerns for personal safety and family well-being (1,6).

Healthcare crises can also affect communication and decision-making in clinical practice. Measures such as isolation protocols and restrictions on hospital visits may reduce contact between patients, families, and healthcare providers. As a result, it may become more difficult to obtain informed consent and involve patients and their relatives in medical decisions, which can raise ethical concerns related to patient autonomy and quality of care (13).

While these ethical challenges have been widely described in the context of specific crises, they are often examined separately or within individual settings. A broader synthesis is therefore needed to

better understand how these dilemmas emerge across different types of healthcare crises and how they are experienced by physicians in practice.

2.5 Ethical Frameworks in Crisis Medicine

Ethical frameworks have been developed to support clinical decision-making during healthcare crises, particularly in situations characterized by uncertainty and limited resources. These frameworks provide general guidance for balancing competing ethical obligations and promoting consistency in decision-making processes (1,6).

A key feature of many crisis ethics frameworks is the recognition that, under extreme conditions, healthcare systems may need to shift from an exclusively patient-centered approach to broader population needs. In such contexts, ethical guidance often emphasizes principles such as fairness, proportionality, and maximizing overall benefit, while still maintaining respect for fundamental ethical values (4,6).

In addition, existing frameworks highlight the importance of transparency, accountability, and preparedness in healthcare crises. International organizations, including the World Health Organization, have also provided general ethical guidance to support healthcare systems during public healthcare crises(1). However, these frameworks are often presented at a conceptual level, and their application in real-world clinical settings remains complex and context-dependent.

Although ethical dilemmas in healthcare crises have been widely discussed, existing literature often focuses on specific aspects of ethical decision-making or particular crisis settings, such as pandemics or disaster response. Furthermore, many studies present theoretical perspectives without systematically synthesizing findings across different crisis contexts or focusing specifically on physicians as a professional group. As a result, there remains a need for a structured synthesis that identifies common ethical challenges encountered by physicians and examines how these challenges arise across different types of crises. This supports the use of a review-of-reviews approach in the present study.

3.Methodology

3.1 Study Design

This study was a systematic review of reviews (umbrella review) to synthesize existing evidence on ethical dilemmas encountered by physicians during healthcare crises. The review aimed to identify

recurring ethical challenges across different healthcare crisis contexts and provide a structured overview of the existing literature.

Initially, the study protocol considered the inclusion of primary qualitative and quantitative studies examining ethical dilemmas experienced by physicians in crisis settings. However, during the literature screening process, it became evident that many of the relevant publications consisted of review-type articles synthesizing ethical challenges across multiple healthcare crisis contexts. In order to improve methodological coherence and provide a broader synthesis of the available evidence, the study design was refined to focus exclusively on review-type articles.

Consequently, the study was conducted as an umbrella review rather than a traditional systematic review of primary studies. Umbrella reviews are designed to synthesize evidence from previously published review articles in order to provide a comprehensive overview of a broad research topic (14). In the present study, this approach was applied by systematically identifying, screening, and synthesizing review-type articles addressing ethical dilemmas encountered by physicians during healthcare crises. This approach enabled the identification of overarching ethical themes and patterns across multiple reviews while remaining consistent with the overall research aim. Minor adjustments to the inclusion criteria were also made to ensure consistency with the revised study design. These modifications did not alter the core research question of the study.

3.2 Eligibility Criteria

Studies were selected according to predefined inclusion and exclusion criteria to ensure relevance to the research topic.

Inclusion criteria:

Studies were included if they met the following criteria:

- **Study type:** Review-type articles, including systematic reviews, scoping reviews, and rapid reviews.
- **Population:** Physicians working in crisis settings. Studies including broader healthcare professionals were included only if findings specific to physicians could be identified.
- **Phenomenon of interest:** Ethical dilemmas, ethical challenges, ethical conflicts, or moral distress encountered in clinical practice.
- **Context:** Healthcare crises involving significant disruption to healthcare delivery and clinical decision-making, particularly pandemics, infectious disease outbreaks, and situations of resource scarcity.
- **Language:** Articles published in English.

- **Publication period:** Studies published between 2000 and 2025.

Exclusion criteria:

Studies were excluded if they met any of the following criteria:

- Studies that did not address ethical dilemmas, ethical challenges, or ethical decision-making in healthcare.
- Studies not related to crisis or emergency contexts as defined in this review.
- Studies not focusing on physicians or not providing extractable data specific to physicians.
- Primary research studies, including qualitative, quantitative, or mixed-methods studies.
- Editorials, commentaries, opinion papers, and purely normative ethical analyses.
- Conference abstracts, dissertations, theses, and other forms of grey literature.
- Non–peer-reviewed publications.
- Articles not published in English.
- Duplicate records or articles without accessible full text.

Justification of Study Selection Criteria

The decision to include only review-type articles reflects the aim of this study to synthesize existing evidence rather than primary studies. This approach corresponds to an umbrella review design, which enables the identification of overarching themes and patterns across multiple reviews and provides a broader overview of the existing literature (14). Although this approach may exclude some primary or normative bioethics literature, it allows for a more structured synthesis of how ethical dilemmas have been described and analyzed in previous review studies.

3.3 Information Sources

The literature search was conducted using the electronic databases PubMed and Scopus. These databases were selected for their broad coverage of biomedical and interdisciplinary research, including medical ethics and healthcare publications. Although additional databases, such as Web of Science and

specialized ethics databases, exist, PubMed and Scopus were considered sufficient to capture the majority of relevant peer-reviewed literature for this review.

The search was conducted between January 2026 and March 2026, with the final search performed on March 15, 2026.

In addition, Google Scholar was used as a supplementary search source to identify potentially relevant studies that might not have been captured through the primary database search. Google Scholar was used only as a supplementary source due to its limited reproducibility and lack of advanced filtering options compared to structured databases. The search was conducted on March 15, 2026, using the same keywords as in the primary database search. Results were sorted by relevance, and the first 10 pages of results were screened. Screening was stopped after no additional relevant studies were identified in subsequent pages.

Only articles published in English were considered. The search was limited to studies published between 2000 and 2025.

3.4 Search Strategy

A structured search strategy was developed to identify relevant studies addressing ethical dilemmas in healthcare during healthcare crises. The search strategy was designed to capture a broad range of terms related to ethics, crisis contexts, and clinical decision-making.

The search included combinations of keywords and controlled vocabulary (MeSH terms in PubMed) related to the following concepts: ethics (“ethics,” “ethical dilemmas,” “ethical challenges,” “moral distress,” “moral injury”), crisis contexts (“crisis,” “emergency,” “pandemic,” “disaster,” “armed conflict,” “humanitarian,” “resource scarcity”), and clinical practice (“healthcare,” “physician,” “doctor,” “clinical decision-making,” “triage,” “rationing,” “crisis standards of care,” “public health ethics,” “disaster ethics”).

Boolean operators (AND, OR) were used to combine search terms, and truncation and quotation marks were applied where appropriate to capture variations of keywords and exact phrases. Searches were conducted in titles and abstracts, and database-specific subject headings (e.g., MeSH terms in PubMed) were used where available.

The search strategy was initially pilot-tested and refined by adjusting keywords and adding relevant synonyms to improve sensitivity and ensure the inclusion of relevant literature. Minor adaptations were made for each database to account for differences in indexing and search functionality.

Filters were applied to limit results to English-language publications and studies published between 2000 and 2025. The detailed search strategy for each database, including full search strings, filters, and limits, is provided in Annex 1.

3.5 Study Selection

The study selection process was conducted in several stages. Initially, 514 records were identified through the PubMed database, and an additional 200 records were retrieved from Scopus. In addition, a supplementary screening was conducted using Google Scholar to identify potentially relevant studies not captured in the database searches. This involved screening the first 10 pages of results (approximately 300 records), sorted by relevance, in accordance with the predefined search strategy.

All identified records were screened by a single reviewer through title and abstract review to assess their relevance to the research topic. A structured screening approach based on the predefined inclusion and exclusion criteria was used. Studies that did not meet the eligibility criteria were excluded at this stage.

The remaining articles were subsequently assessed through full-text review to determine their eligibility for inclusion in the study.

Following the screening process, 11 studies from PubMed and 4 studies from Scopus met the eligibility criteria and were included in the final analysis. The supplementary Google Scholar search did not yield any additional eligible studies.

In total, 15 studies were included in this systematic review of reviews.

The screening process was conducted by a single reviewer due to the scope and feasibility of the study. While independent dual screening is recommended in systematic reviews, single-reviewer screening is considered acceptable in smaller-scale academic studies, provided that predefined inclusion and exclusion criteria are applied consistently to minimize bias.

3.6 Data Extraction

Data from the included studies were systematically extracted and organized into a structured data extraction table (Annex 2). The data extraction process was conducted by a single reviewer using a predefined extraction framework based on the study objectives and the original protocol.

The extracted information included the following variables:

- Author(s) and year of publication
- Study type
- Country or region (where reported)
- Crisis context (e.g., pandemic, natural disaster, armed conflict, or mixed crisis settings)
- Population characteristics, including whether the study focused specifically on physicians or broader healthcare professional groups
- Study setting (where available)
- Ethical dilemmas and challenges identified
- Ethical frameworks or principles discussed (if reported)
- Key findings of each study

The data extraction form was developed prior to full data extraction and was refined during the initial stages of the process to ensure consistency and completeness of the extracted data.

As this was a single-reviewer study, data extraction was not performed independently by multiple reviewers. However, a structured and systematic approach based on predefined criteria was applied to minimize the risk of bias.

In cases where information was missing or not clearly reported, the available data were recorded as presented in the original studies without further interpretation.

This approach allowed for a more structured comparison of the included studies and supported the identification of recurring ethical themes across different crisis contexts.

3.7 Quality Assessment

The methodological quality of the included reviews was assessed using the AMSTAR 2 (A Measurement Tool to Assess Systematic Reviews-2) instrument. AMSTAR 2 is a validated critical appraisal tool designed to evaluate the methodological rigor of systematic reviews, including those incorporating both randomized and non-randomized studies (15).

Each included review was assessed across key domains of the AMSTAR 2 tool, with particular attention to critical domains such as protocol registration, adequacy of the literature search, use of duplicate study selection and data extraction, provision of a list of excluded studies, and the use of appropriate risk of bias or quality appraisal methods.

The appraisal was conducted by a single reviewer (the author of this thesis) using the AMSTAR 2 guidance for the overall confidence rating. Each review was categorized into one of four levels of methodological confidence: high, moderate, low, or critically low, based on the presence of critical flaws and non-critical weaknesses.

Given that some included studies were scoping reviews or focused on ethical and policy-based literature rather than intervention studies, AMSTAR 2 was applied with caution, as the tool is primarily designed for intervention-based systematic reviews.

The results of the quality assessment are presented in Annex 3.

3.8 Data Synthesis

A thematic synthesis approach was used to analyze and summarize the findings of the included reviews. Due to heterogeneity across the included reviews in terms of study type (systematic, scoping, and rapid reviews), variability in crisis contexts (e.g., pandemics, infectious disease outbreaks, and situations involving resource scarcity), differences in target populations (physicians versus broader healthcare professional groups), and variation in reported ethical outcomes, a quantitative synthesis or meta-analysis was not considered appropriate.

The extracted data were systematically reviewed and compared to identify common ethical dilemmas and recurring themes related to healthcare practice during healthcare crises. Similar findings across

reviews were grouped into broader thematic categories to facilitate structured interpretation and discussion of the ethical challenges encountered by physicians during healthcare crises.

Results

4.1 Study Selection

The literature search identified 714 records across the selected databases. Specifically, 514 records were identified through PubMed and 200 through Scopus. Additional screening was conducted using Google Scholar, during which approximately 300 additional records were reviewed; however, no additional eligible studies were identified.

Duplicate records were identified and removed prior to screening. After duplicate removal, titles and abstracts were screened for relevance to the research topic. Most records were excluded at this stage because they did not meet the predefined inclusion criteria, including failure to address ethical dilemmas in healthcare crisis contexts or not being review-type articles (e.g., systematic, scoping, or rapid reviews).

The remaining articles underwent full-text assessment to determine eligibility according to the predefined inclusion criteria. Following this process, 15 review articles were included in the final analysis. These reviews addressed ethical dilemmas encountered by physicians during healthcare crises, particularly in the context of pandemics, infectious disease outbreaks, and situations involving resource scarcity.

The study selection process is illustrated in the PRISMA flow diagram (Figure 1).

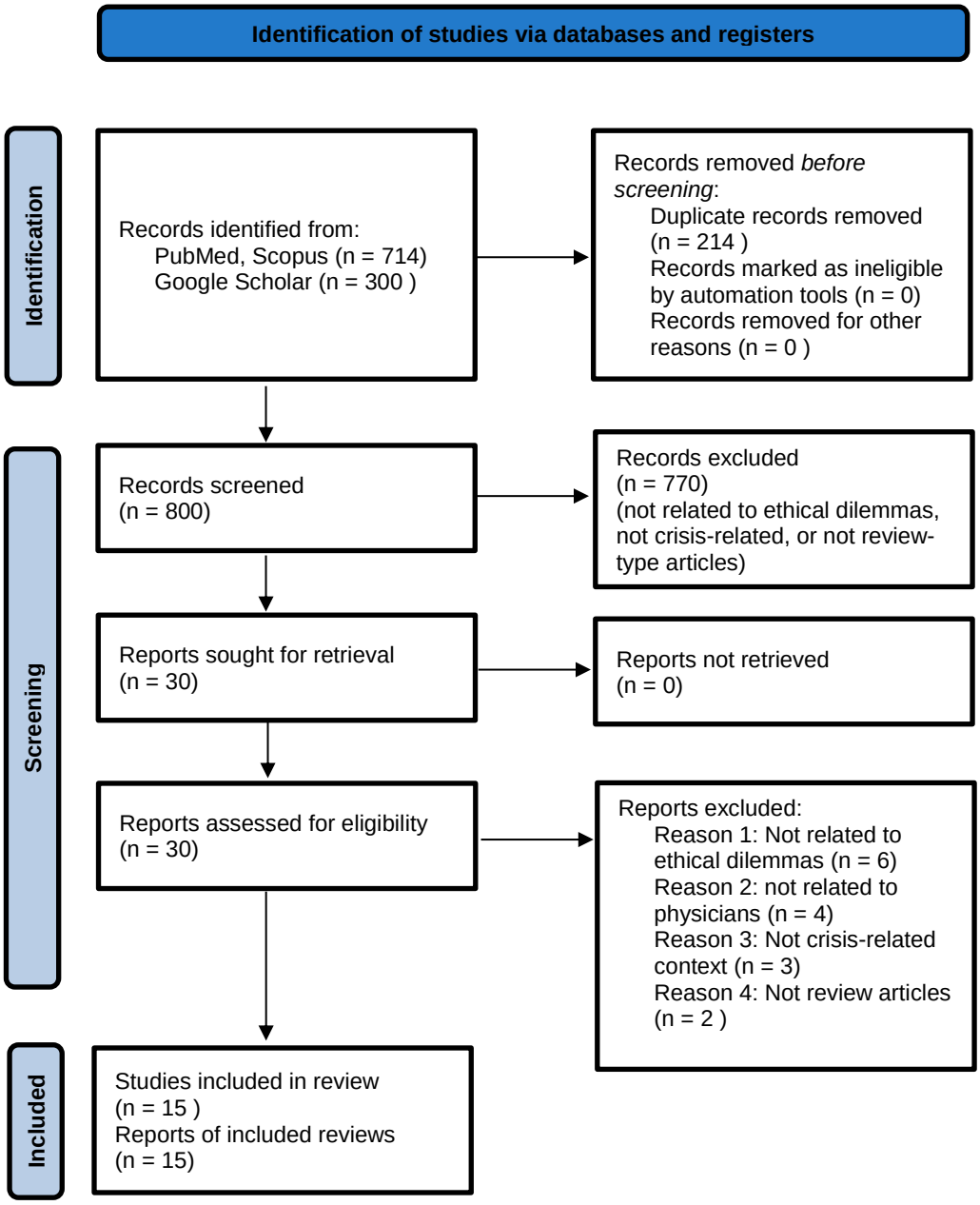

Figure 1. PRISMA flow diagram of the study selection process.

4.2 Characteristics of Included Studies

The literature search identified 15 reviews that met the inclusion criteria and were included in this umbrella review. The majority of the included reviews were systematic reviews (n = 13), with one rapid systematic review and one scoping review. The reviews were published between 2000 and 2025, and 9 reviews specifically focused on ethical issues related to the COVID-19 pandemic.

The included reviews varied in scope and geographical context. Several reviews synthesized evidence from multiple countries and adopted a global perspective, whereas others focused on specific countries or regions, particularly the United States and South Asia. Most reviews examined ethical challenges arising during pandemics and public health emergencies, while a smaller number addressed broader disaster and emergency settings. Some reviews focused specifically on intensive care unit (ICU) settings and resource allocation, whereas others explored ethical issues across broader healthcare contexts.

4.3 Quality Assessment Results

The methodological quality of the included reviews was assessed using the AMSTAR 2 tool, and the results are presented in Annex 4.

Overall, the methodological quality of the included studies was predominantly low to critically low. Of the 15 included reviews, one was rated high confidence, two were rated low confidence, and the remaining 12 were rated critically low according to AMSTAR 2 criteria.

Reviews rated as high or low confidence generally demonstrated key methodological strengths, including protocol registration, comprehensive multi-database search strategies, and the use of duplicate study selection and/or data extraction processes. Some of these studies also incorporated formal risk-of-bias or quality appraisal tools.

In contrast, the majority of reviews rated as critically low exhibited multiple methodological limitations across critical domains. Common issues included the absence of protocol registration, the lack of comprehensive search strategies, failure to perform duplicate study selection or data extraction, and the omission of formal risk-of-bias or quality appraisal methods. In addition, none of the included reviews provided a complete list of excluded studies with justification, which represents a key limitation according to AMSTAR 2 criteria.

Despite many studies reporting adherence to general reporting guidelines such as PRISMA, this did not consistently translate into high methodological rigor when assessed using AMSTAR 2.

It is also important to consider that several included reviews focused on ethical frameworks, policy documents, or conceptual analyses rather than intervention-based research. As a result, certain AMSTAR 2 domains—particularly those related to risk-of-bias assessment—were not always

applicable or consistently reported. Therefore, the overall ratings should be interpreted with caution, as lower scores may partly reflect the nature of the evidence base rather than solely methodological weaknesses.

4.4 Thematic Analysis of Ethical Challenges

A thematic analysis approach was used to identify and synthesize recurring ethical dilemmas across the included reviews. The analysis followed a primarily inductive approach, whereby the final thematic categories were derived from the findings reported in the included reviews. Although the literature review discussed several ethical challenges previously described in the literature, these concepts were used only as background context and did not predetermine the final thematic structure of the analysis. Data extraction and coding were conducted by a single reviewer, and themes were developed through an iterative process of reviewing and grouping similar concepts across the included reviews.

The analysis focused on identifying conceptual patterns and recurring ethical themes, rather than quantifying the frequency of individual findings. The synthesis was based primarily on the interpretations and reported findings of the included reviews, rather than re-analyzing the primary studies within those reviews.

A thematic analysis of the included reviews identified several recurring ethical challenges encountered by physicians during healthcare crises. Comparison of the included reviews demonstrated that similar ethical challenges were reported across different healthcare crisis contexts, despite differences in study settings and populations. This finding corresponded with the objective of the study, which was to identify recurring ethical challenges encountered by physicians during healthcare crises and synthesize common themes across the existing literature.

Commonly reported ethical dilemmas included resource allocation, triage decision-making, fairness and equity in access to care, balancing public health priorities with individual patient rights, the professional duty to provide care during infectious disease outbreaks, and ethical challenges related to patient autonomy and end-of-life care.

Based on the analysis of the included reviews, four main thematic categories were identified: allocation of scarce medical resources, triage and patient prioritization, the duty of healthcare professionals to provide care during crises, and ethical challenges associated with patient autonomy and end-of-life decision-making. Each of these themes is discussed in the following subsections.

Given the umbrella review design, there is a possibility of overlap in primary studies across the included reviews, particularly in areas such as COVID-19-related research. While a formal assessment of overlap was not conducted, this was considered during the interpretation of the findings to minimize potential double-counting of evidence.

4.4.1 Allocation of Scarce Medical Resources

The allocation of limited medical resources was one of the most consistently reported ethical challenges across the included reviews (22–32). This dilemma was particularly prominent in pandemic settings, especially during COVID-19, and was frequently discussed in relation to intensive care unit (ICU) environments, where demand for ventilators and ICU beds exceeded available capacity (25,31,34).

In healthcare crises such as pandemics and large-scale disasters, healthcare systems often face a significant imbalance between the demand for care and the available medical capacity. This imbalance creates conditions in which not all patients can receive the same level of treatment, requiring healthcare professionals to make difficult decisions regarding the distribution of essential resources. Across the reviewed literature, this gave rise to a central ethical conflict between individual-focused care and population-level outcomes, where clinicians must balance fairness and equal treatment with strategies aimed at maximizing overall survival (26,32).

Several of the included reviews, particularly those focusing on ICU settings during the COVID-19 pandemic, highlighted the pressure placed on clinicians when access to life-saving interventions becomes limited (25,31). Under such circumstances, physicians are required to determine which patients should receive treatment based on clinical assessments, expected outcomes, and available resources. These decisions are often made rapidly and under considerable uncertainty, which further increases their ethical complexity and emotional burden.

The findings also indicate that ethical challenges related to resource allocation and patient prioritization differed between pandemic-related ICU settings and broader healthcare emergency contexts. Reviews focusing specifically on ICU and pandemic settings emphasized acute, high-pressure decision-making, whereas broader disaster-related reviews described system-level allocation strategies, including the implementation of crisis standards of care and institutional triage frameworks (26,28). In addition, some reviews included evidence from mixed groups of healthcare professionals, while others focused specifically on physicians, which may influence both the framing of ethical dilemmas and the proposed approaches to resolving them.

In many cases, healthcare systems adopt strategies to maximize overall survival or achieve the greatest possible benefit from limited resources. While this approach may be justified from a public health perspective, it can create tension with the ethical obligation to treat all patients equally and to respect individual patient needs. Several reviews described the use of structured allocation frameworks and clinical scoring systems, such as prioritization based on prognosis or comorbidities, to support decision-making (28,31). However, the literature also indicates that these criteria may raise concerns regarding fairness, bias, and potential discrimination, particularly affecting vulnerable populations such as elderly patients or those with chronic conditions (33,34).

Another important aspect identified across the included reviews is the need for transparency in allocation decisions. When resources are limited, clear communication about how decisions are made becomes essential to maintaining trust among healthcare providers, patients, and the wider community. Several reviews emphasized that the absence of transparent policies may lead to perceptions of unfairness and increase the ethical burden on clinicians (32,35).

Furthermore, the emotional and psychological impact of resource allocation decisions on healthcare professionals should not be underestimated. The reviewed literature consistently highlights experiences of moral distress among physicians involved in these decisions, particularly when they are unable to provide care to all patients in need (32,35). This burden may be intensified in prolonged crises, such as the COVID-19 pandemic, where clinicians are repeatedly exposed to ethically challenging situations.

In addition, several reviews noted that resource allocation decisions may evolve as the crisis progresses and its severity increases. During early phases, decision-making may remain closer to standard clinical practice, while more restrictive allocation strategies may be implemented as resource scarcity increases. This dynamic nature of decision-making further highlights the complexity of ethical challenges in crisis settings and the need for flexible approaches that can adapt to changing conditions.

Overall, the findings demonstrate that the allocation of scarce medical resources represents a central ethical challenge across multiple crisis contexts, but is most acute in pandemic and ICU settings. The complexity of these decisions underscores the need for clear ethical frameworks, transparent triage protocols, and institutional support systems to guide clinicians in managing resource limitations consistently and ethically.

A thematic matrix mapping the included reviews to the identified ethical themes is provided in Annex 3 to enhance transparency.

4.4.2 Triage and Patient Prioritization

Triage and patient prioritization emerged as a central ethical challenge across the included reviews, but at the level of clinical decision-making. Unlike broader resource allocation, which operates at a system or policy level, triage refers to the process by which clinicians determine the order and priority of treatment for individual patients when demand exceeds available capacity.

Several of the included reviews (24, 25, 30, 31, 32, 33) described the implementation of triage protocols, particularly in intensive care unit (ICU) settings during the COVID-19 pandemic. These protocols were designed to support decision-making under conditions of scarcity and typically involved categorizing patients based on criteria such as severity of illness, urgency of treatment, likelihood of survival, and expected benefit from intervention. In some cases, structured clinical tools and scoring systems were used to increase consistency and transparency in prioritization decisions (31, 32). Some reviews also discussed the role of institutional triage frameworks and ethics guidance in supporting clinical decision-making during healthcare emergencies.

However, applying such criteria raises specific ethical concerns. The reviewed literature indicates that prioritization based on prognosis, comorbidities, or functional status may disadvantage certain patient groups, including elderly individuals or those with chronic conditions (25, 31). Some reviews also reported the inclusion of additional criteria, such as prioritizing healthcare workers or considering social utility, which introduces further tension between fairness and maximizing overall benefit (26, 32).

These findings highlight a key ethical conflict between approaches that aim to maximize outcomes (e.g., saving the greatest number of lives) and those that emphasize equal treatment and non-discrimination. While triage systems aim to provide objective and consistent guidance, their application in practice requires clinicians to make difficult judgments that directly affect patient outcomes.

In contrast to allocation frameworks, which are typically established at an institutional or policy level, triage decisions are implemented at the bedside. This places a significant ethical burden on physicians, who must apply general principles to individual cases, often under conditions of time pressure and uncertainty (25, 29).

Overall, triage represents the operational level of ethical decision-making during healthcare crises, where abstract principles are translated into concrete clinical actions. The variation in triage criteria across settings and their potential implications for equity underline the importance of clear, context-sensitive guidance to support clinicians in making ethically justified decisions.

4.4.3 Duty of Healthcare Professionals to Provide Care

The professional duty of healthcare Professionals to provide care during healthcare crises represents another important ethical issue identified across the reviewed studies. In the context of public healthcare crises, particularly infectious disease outbreaks, healthcare professionals are often expected to continue delivering care despite increased risks to their own health and safety (29, 33). This expectation raises important ethical questions regarding the extent and limits of professional responsibility under such conditions.

Several studies included in this review examined the ethical obligations of physicians and other healthcare workers during pandemics and disaster settings (26, 29, 32, 33). The literature generally identifies the duty to treat as a fundamental component of medical professionalism. However, healthcare crises may place this obligation in tension with concerns related to personal safety, particularly when healthcare Professionals are exposed to infectious diseases or hazardous environments (29, 33).

Some reviews highlighted situations in which healthcare professionals faced increased risks due to high patient volumes, prolonged exposure to infected individuals, and limited availability of personal protective equipment (PPE) (29, 33). Under these conditions, clinicians may be required to balance their commitment to patient care with their responsibility to protect their own health and that of their families.

The literature also reflects ongoing debate regarding the limits of professional duty. While some authors argue that healthcare Professionals have a strong moral obligation to provide care even in high-risk situations, others emphasize that this obligation is not absolute and should be supported by adequate institutional protections and resources (26, 32, 33). These perspectives suggest that professional responsibility during crises is shaped not only by individual ethics but also by systemic conditions.

As reflected across the included reviews, the ability of healthcare professionals to fulfill their responsibilities during crises is closely linked to the level of institutional support, including access to protective equipment, clear guidelines, and organizational preparedness (26, 30). This highlights that ethical obligations cannot be considered independently from the healthcare system in which clinicians operate.

Overall, the findings suggest that the duty to provide care during healthcare crises is shaped by an interaction between professional values, personal risk considerations, and systemic factors. This makes it one of the most ethically contested dimensions of healthcare practice in emergency settings.

4.4.4 Patient Autonomy and End-of-Life Care

Ethical challenges related to patient autonomy and end-of-life decision-making were also consistently identified across the reviewed studies (32,35,38). In contrast to the previously discussed issues, which are primarily associated with resource limitations and clinical prioritization, this category of dilemmas focuses on the patient's role in decision-making and on maintaining patient-centered care under crisis conditions.

Several studies highlighted that public health measures implemented during pandemics and other emergencies may significantly affect communication between patients, their families, and healthcare providers (35,38). Restrictions on hospital visitation, isolation protocols, and infection-control measures can limit direct interaction, making it more difficult to involve patients and their relatives in discussions about treatment options.

These limitations may complicate informed consent, particularly when decisions must be made quickly or when patients are unable to communicate effectively (35). In some cases, clinicians may be required to make decisions with limited input from patients or their families, raising concerns about the extent to which patient preferences are adequately considered.

End-of-life care represents a particularly sensitive area in this context. Several of the included studies described challenges associated with decisions to withhold or withdraw life-sustaining treatment during healthcare crises (32,38). Such decisions may be influenced not only by the patient's clinical condition but also by broader factors, including resource availability and institutional policies. Several reviews additionally highlighted the influence of legal and ethical frameworks on end-of-life decision-making and communication practices during healthcare crises (26,32,35).

In addition, the absence of family presence during critical moments may affect the emotional and ethical aspects of end-of-life care (38). The reviewed literature suggests that maintaining dignity, respect, and clear communication remains essential, even when healthcare systems are operating under significant constraints.

As with other ethical challenges identified in this review, issues related to patient autonomy and end-of-life care are shaped by both clinical circumstances and systemic conditions. These findings highlight

the importance of preserving patient-centered values as much as possible, even when ideal standards of care cannot be fully met.

5. Discussion

This umbrella review synthesized findings from fifteen review articles examining ethical dilemmas encountered by physicians during healthcare crises, particularly during pandemics, public health emergencies, and critical care situations. The reviewed literature indicates that healthcare crises create clinical environments characterized by uncertainty, time pressure, and resource limitations, all of which complicate ethical decision-making. These findings align with the ethical framework described by Thomas L. Beauchamp and James F. Childress, which emphasizes balancing principles such as beneficence, autonomy, and justice (2). However, unlike routine clinical contexts, the reviewed studies suggest that crisis situations frequently place these ethical principles in direct tension due to operational constraints and resource scarcity.

A key finding of this review is that ethical dilemmas rarely occur in isolation but tend to overlap and interact. For example, decisions related to triage and patient prioritization are closely linked to resource limitations, while restrictions on communication affect both patient autonomy and end-of-life care. This observation is consistent with prior work in disaster ethics, which highlights that ethical challenges in emergencies are interconnected rather than discrete (6). However, the included reviews further demonstrate that this interconnectedness becomes more pronounced in prolonged crises such as the COVID-19 pandemic, where multiple ethical pressures occur simultaneously and repeatedly.

The findings also indicate a shift from individual patient-centered care toward population-based decision-making during crises. This transition corresponds to the utilitarian allocation principles proposed by Ezekiel J. Emanuel and colleagues (11), which prioritize maximizing overall benefit. However, unlike these theoretical models, the included reviews reveal significant challenges in implementing such approaches in practice. In particular, clinicians must apply population-level principles to individual patients under time pressure, a tension that creates conflict among fairness, equity, and clinical judgment.

Importantly, this review highlights that ethical dilemmas are shaped not only by individual decision-making but also by systemic and organizational factors. This supports previous research emphasizing the role of institutional preparedness and policy frameworks in crisis ethics (8,9). However, the present

findings extend this understanding by demonstrating that variability in healthcare system capacity leads to differences in how ethical dilemmas are experienced. In high-income settings, ethical challenges are often related to advanced resource allocation, such as ICU triage and ventilator distribution, whereas in lower-resource settings, dilemmas more frequently arise from limited access to basic care and workforce shortages. This suggests that while ethical principles may be universal, their application is highly context-dependent.

Finally, the findings emphasize that ethical challenges vary across healthcare environments and crisis types. This observation is consistent with prior literature on public health ethics, which recognizes the influence of social and structural determinants on ethical decision-making (1). However, the included reviews provide further insight by showing that differences in infrastructure, resource availability, and institutional support directly affect both the nature and intensity of ethical dilemmas encountered by physicians. This reinforces the need for flexible, context-sensitive ethical frameworks that can be adapted to diverse healthcare systems and crisis conditions.

5.1 Allocation of Scarce Medical Resources

The findings of this review indicate that allocating scarce medical resources is one of the central ethical challenges encountered during healthcare crises. Across the included reviews, resource scarcity was particularly evident in intensive care unit (ICU) settings during the COVID-19 pandemic, where limitations in ventilators, ICU beds, staffing, and other essential resources required clinicians to make difficult allocation decisions under conditions of uncertainty and time pressure (25,28,30,31,32,34). These findings are consistent with broader discussions in public health ethics regarding the tension between individual-focused care and population-based approaches during emergencies (11).

The reviewed literature suggests that healthcare crises often shift clinical decision-making from individualized patient-centered care toward strategies aimed at maximizing overall benefit. This transition corresponds to utilitarian allocation principles proposed in crisis ethics frameworks, which prioritize saving the greatest number of lives or maximizing overall survival (11). However, the included reviews demonstrate that implementing such principles in practice remains ethically complex. Physicians are required to apply population-level allocation strategies to individual patients, which may create tension between fairness, equity, and clinical judgment.

Importantly, the findings indicate that ethical dilemmas related to resource allocation are shaped not only by individual clinical decisions but also by broader systemic and organizational factors. This observation supports previous literature emphasizing the importance of institutional preparedness and policy frameworks in healthcare crisis management (8,9). The reviewed studies further suggest that variability in healthcare system capacity influences how allocation dilemmas are experienced across different settings. In higher-resource healthcare systems, ethical challenges frequently focus on advanced ICU triage and ventilator allocation, whereas in lower-resource settings, dilemmas more commonly center on shortages of basic medical care and workforce capacity.

The reviewed literature also highlights the importance of transparency and consistency in allocation processes. Structured allocation frameworks and institutional guidance may help reduce uncertainty and support more ethically justified decision-making during healthcare crises. Nevertheless, concerns regarding fairness, discrimination, and unequal impact on vulnerable populations remain significant ethical concerns within resource allocation practices (26,32,34).

5.2 Triage and Patient Prioritization

The findings of this review demonstrate that triage and patient prioritization constitute a distinct but closely related ethical challenge during healthcare crises. While resource allocation frameworks are often developed at institutional or policy levels, triage decisions are implemented directly at the bedside, requiring physicians to make rapid decisions regarding patient treatment priorities under conditions of scarcity.

Several included reviews described the implementation of triage protocols and crisis standards of care during the COVID-19 pandemic, particularly within ICU environments (24,25,28,30,31,34). These protocols aimed to support consistency and transparency in prioritization decisions through the use of clinical criteria such as prognosis, likelihood of survival, severity of illness, and expected treatment benefit. However, the reviewed literature also highlights ethical concerns associated with these approaches, particularly regarding the potential disadvantage imposed on elderly patients, individuals with chronic conditions, and other vulnerable groups (33).

The findings further indicate that ethical challenges related to triage vary according to the healthcare context. Pandemic-related ICU settings were characterized by acute, high-pressure decision-making, whereas broader healthcare emergency contexts more frequently emphasized institutional crisis

standards of care and system-level prioritization frameworks (24,26,28). This demonstrates that triage practices are highly context-dependent and influenced by both healthcare infrastructure and organizational preparedness.

The reviewed studies additionally suggest that institutional ethics guidance and ethics consultation services may contribute to more structured and transparent decision-making during crises. Ethics committees and institutional frameworks were described as mechanisms that may support clinicians in navigating ethically complex prioritization decisions and reducing inconsistencies in clinical practice (19,26). This reflects an increasing recognition of collaborative and system-based approaches to ethical decision-making during healthcare emergencies.

Overall, the findings suggest that triage represents the operational level at which broader ethical principles are translated into direct clinical action. This creates significant ethical responsibility for physicians, who must balance individual patient interests with wider public health considerations while operating under substantial pressure and uncertainty.

5.3 Duty of Healthcare Professionals to Provide Care

The findings of this review indicate that healthcare crises create substantial ethical tension regarding the professional duty of physicians and other healthcare professionals to provide care during emergencies. Across the included reviews, clinicians frequently faced situations involving increased occupational risk, emotional stress, resource limitations, and concerns regarding personal and family safety (29,35,36).

The reviewed literature demonstrates that the duty to provide care is often viewed as a fundamental component of medical professionalism. However, the findings also indicate that this obligation is not universally understood as absolute. Several reviews emphasized that professional responsibilities during healthcare crises should be balanced against the obligation of healthcare systems and institutions to provide adequate protection, resources, and organizational support for clinicians (29,32,35).

The findings additionally highlight the substantial emotional and psychological burden experienced by healthcare professionals during crises. Physicians involved in triage decisions, allocation of scarce resources, and end-of-life care frequently experienced moral distress, emotional exhaustion, and psychological strain. These experiences were particularly pronounced during prolonged healthcare

emergencies such as the COVID-19 pandemic, where repeated exposure to ethically difficult situations intensified the risk of burnout and moral injury (35,36).

Importantly, the reviewed literature suggests that moral distress during healthcare crises is influenced not only by individual ethical conflict but also by systemic conditions, including staffing shortages, inadequate institutional support, unclear guidelines, and resource scarcity. This indicates that ethical burden should not be understood solely as an individual responsibility but also as a reflection of broader organizational and structural factors within healthcare systems.

Overall, the findings suggest that the duty to provide care during healthcare crises is shaped by an interaction between professional values, personal risk considerations, institutional support, and healthcare system capacity. These findings emphasize the importance of clear guidance, organizational preparedness, and psychological support mechanisms for healthcare professionals working in crisis settings.

5.4 Patient Autonomy and End-of-Life Care

The findings of this review indicate that healthcare crises significantly affect the ability to maintain patient autonomy and patient-centered decision-making. Across the included reviews, public health measures implemented during pandemics and other healthcare emergencies frequently restricted communication between patients, families, and healthcare providers, thereby complicating informed consent processes and end-of-life discussions (35,38).

Several reviewed studies described how infection-control measures, isolation protocols, and restrictions on hospital visitation reduced opportunities for direct communication with patients and their relatives (35,38). These limitations often required clinicians to make decisions with limited patient or family involvement, raising ethical concerns regarding respect for patient autonomy and the extent to which patient preferences could be adequately considered.

The reviewed literature further suggests that ethical dilemmas related to end-of-life care became particularly prominent during periods of severe resource scarcity. Decisions regarding withholding or withdrawing life-sustaining treatment were frequently influenced not only by clinical considerations but also by institutional policies, triage protocols, and limitations in healthcare capacity (32,38). Such

situations created ethical tension between preserving patient-centered care and responding to broader public health demands.

In addition, several included reviews highlighted the influence of legal and ethical frameworks on end-of-life decision-making during healthcare crises. The findings suggest that ethical recommendations and legal obligations do not always align seamlessly during emergencies. While ethical frameworks may support allocation strategies aimed at maximizing overall benefit, legal frameworks may simultaneously emphasize patient rights, non-discrimination, and professional accountability (26,32,35). This divergence may create uncertainty for clinicians attempting to balance ethical reasoning with legal responsibilities in crisis conditions.

The reviewed literature also emphasizes that maintaining dignity, compassion, and effective communication remains essential even under highly constrained healthcare conditions. The absence of family presence during critical moments was frequently described as contributing to emotional distress for both patients and healthcare professionals (38). These findings reinforce the importance of preserving patient-centered values and communication practices as much as possible during healthcare crises, despite operational limitations and systemic pressures.

5.5 Strengths and Limitations of the Study

This study has several strengths that should be considered when interpreting the findings. First, the use of a systematic review methodology allowed for a structured and comprehensive examination of the existing literature on ethical dilemmas in healthcare crises. By applying predefined inclusion and exclusion criteria and conducting searches across multiple databases, the study identified relevant research from a range of healthcare settings and crisis contexts. In addition, the use of thematic analysis provided a clear and systematic framework for organizing and interpreting the ethical challenges described in the literature. Furthermore, the inclusion of a formal methodological quality assessment using the AMSTAR 2 tool strengthened the transparency of the review and enabled a more critical interpretation of the included evidence.

However, several limitations should also be acknowledged. One limitation of this review is the relatively small number of included studies, which may restrict the generalizability of the findings. Although the included studies covered a variety of crisis scenarios, the total number of eligible articles

was limited, and the results may not fully capture all possible ethical dilemmas encountered in different healthcare systems or regions.

Another limitation concerns the design of this study as an umbrella review (a review of reviews). While this approach allows for a broad synthesis of existing knowledge, it may lead to overlap of primary studies across the included reviews, potentially resulting in double-counting of evidence. Although efforts were made to focus on thematic patterns rather than quantitative aggregation, the possibility of overlapping evidence cannot be fully excluded.

In addition, although AMSTAR 2 was used to assess methodological quality, the results indicated that most included reviews had low or critically low confidence. This limits the overall strength of the evidence base and should be taken into account when interpreting the findings. Furthermore, AMSTAR 2 is primarily designed for intervention-based systematic reviews, and its application to ethics-focused, conceptual, and policy-oriented literature may not fully capture the methodological strengths of such studies. As a result, lower quality ratings may partly reflect limitations of the appraisal tool rather than solely deficiencies in the included studies.

Similarly, study selection, data extraction, and thematic coding were conducted by a single reviewer, which may introduce selection and interpretation bias despite efforts to apply predefined criteria consistently.

Another limitation is that the review protocol was not formally registered in a public database prior to conducting the study. Although a structured approach was followed, the absence of formal registration may limit transparency and reproducibility.

The search strategy also presents certain limitations. The review was restricted to English-language articles and selected databases, potentially excluding relevant studies published in other languages or indexed in other sources. Furthermore, the relatively broad definition of “healthcare crises” may have introduced conceptual heterogeneity across the included studies, thereby complicating comparisons.

Another important limitation is that, although the review focuses on physicians, several included studies examined mixed groups of healthcare professionals rather than physicians exclusively. This may reduce the specificity of conclusions related to physicians and should be considered when interpreting the findings.

Finally, due to the heterogeneity of the included studies in terms of design, setting, and scope, a quantitative synthesis of the data was not feasible. Instead, a thematic analysis approach was used, which may involve some subjectivity in identifying and interpreting themes.

Despite these limitations, the study provides a comprehensive overview of ethical challenges encountered during healthcare crises and highlights key areas for future research, policy development, and clinical guidance.

5.6 Implications for Clinical Practice

The findings of this review have several practical implications for clinical practice in healthcare crisis settings. First, the challenges of resource allocation and triage decision-making highlight the importance of structured, transparent decision-making processes. The included evidence suggests that reliance on individual bedside decision-making may increase ethical burden and variability, indicating the potential value of institutional frameworks or multidisciplinary approaches to support consistent and fair allocation decisions (25,31,34).

Second, the findings on professional responsibility and moral distress underscore the need for organizational support systems for healthcare professionals. The reviewed literature indicates that clinicians experience significant psychological strain under crisis conditions, suggesting that healthcare institutions should provide appropriate support mechanisms, such as access to psychological support and clear clinical guidance, to mitigate these effects (35,36).

Third, the impact of crises on patient autonomy and communication underscores the importance of tailored communication strategies, particularly in situations with restricted visitation. The findings suggest that alternative approaches, including remote communication methods and structured communication practices, may help maintain patient involvement and support decision-making under constrained conditions (33,37).

In addition, the findings indicate that ethics support structures, such as ethics consultation services, may play an important role in assisting clinicians with complex decision-making and communication challenges. The reviewed studies highlight the value of ethical guidance and structured approaches in managing uncertainty and promoting consistency in ethically difficult situations (26,37).

Finally, the variability in ethical challenges across different healthcare systems suggests that clinical guidance should be context-sensitive and adaptable. The findings indicate that ethical frameworks may need to be adjusted to account for local resource availability, infrastructure, and healthcare system capacity.

Overall, these findings suggest that improving ethical decision-making in healthcare crises requires not only individual clinical judgment but also institutional support, structured guidance, and effective communication strategies.

5.7 Future Research Directions

The findings of this review highlight several areas where further research is needed in order to better understand and address ethical dilemmas in healthcare crises. Although the included studies provide valuable insights into the ethical challenges physicians encounter, there remain important gaps in the current literature.

One key area for future research is the need for more primary empirical studies, specifically involving physicians, that examine ethical decision-making in real-time healthcare crises. Many of the studies included in this review were review-based or theoretical, which may not fully capture the complexity of clinical decision-making in practice. Empirical research focused directly on physicians working in crisis settings would provide a more accurate, context-specific understanding of how ethical dilemmas are experienced and managed.

In addition, further research is needed to explore how ethical frameworks are implemented across different healthcare systems. Variations in resources, infrastructure, and cultural values may influence how ethical decisions are made in different settings. Comparative studies examining these differences could help identify best practices and support the development of more adaptable and context-sensitive ethical guidelines.

Another important direction for future research involves the evaluation of existing triage protocols and allocation strategies. While many frameworks have been proposed, there is limited empirical evidence regarding their effectiveness and impact in real-world settings. Research focusing on the outcomes of these approaches may help improve their design and ensure that they are both ethically sound and practically applicable.

Further studies should also examine the long-term psychological and professional impact of ethically challenging decision-making on physicians. Understanding how exposure to such situations affects clinicians over time may help inform strategies to support their well-being, resilience, and retention within the healthcare workforce.

Finally, future research should consider the role of communication and patient involvement in crisis settings. Exploring innovative and practical approaches to maintaining patient-centered care under constrained conditions may help address some of the ethical challenges identified in this review.

6. Conclusion

Healthcare crises expose the limits of routine medical practice by creating conditions in which physicians must make complex decisions under uncertainty, time pressure, and resource constraints. This umbrella review identified several major categories of ethical dilemmas encountered during healthcare crises, including allocation of scarce medical resources, triage and patient prioritization, professional responsibility and duty to care, patient autonomy and end-of-life decision-making, and the psychological impact of moral distress and moral injury.

These ethical challenges were most frequently observed in pandemic-related healthcare settings, particularly intensive care environments during the COVID-19 pandemic, but were also identified across broader healthcare emergency contexts. Across these settings, ethical dilemmas were rarely isolated and often overlapped, reflecting the interconnected nature of ethical decision-making in crisis conditions.

The findings demonstrate that ethical dilemmas in healthcare crises are shaped not only by individual clinical decisions but also by system-level factors, including resource availability, institutional policies, legal and ethical frameworks, and healthcare system preparedness. This highlights that responsibility for ethical decision-making extends beyond individual physicians to healthcare organizations, institutions, and policymakers.

At the same time, the review underscores the human and psychological dimension of these challenges. Physicians are frequently required to make decisions between competing ethical principles, often with no clearly optimal solution, which may contribute to moral distress, emotional exhaustion, and longer-term moral injury.

Importantly, this review also identified several gaps in the existing literature. Much of the current evidence is based on review articles and conceptual analyses, with limited primary empirical research specifically focusing on physicians' real-time experiences in healthcare crisis settings. In addition, the inclusion of studies involving mixed healthcare professional groups may limit the specificity of conclusions about physicians.

The findings have practical implications for clinical practice, suggesting the need for structured ethical frameworks, institutional support systems, ethics consultation mechanisms, and adapted communication strategies to assist clinicians in managing ethically complex situations. Strengthening preparedness in these areas may help reduce variability in decision-making and support more consistent, transparent, and ethically grounded care.

Overall, this review highlights that ethical dilemmas are an inherent and unavoidable component of healthcare crises. Addressing these challenges requires not only clinical expertise but also system-level preparedness, ethical guidance, institutional support, and the protection of patient-centered values to ensure that physicians are better equipped to navigate the complex ethical landscape of crisis medicine.

7.References

1. World Health Organization. *Guidance for managing ethical issues in infectious disease outbreaks*. Geneva: WHO; 2016.
2. Beauchamp TL, Childress JF. *Principles of Biomedical Ethics*. 8th ed. Oxford: Oxford University Press; 2019.
3. Emanuel EJ, Emanuel LL. Four models of the physician–patient relationship. JAMA. 1992;267(16):2221-2226.
4. Persad G, Wertheimer A, Emanuel EJ. Principles for allocation of scarce medical interventions. Lancet. 2009;373:423-431.
5.Rasoal D, Skovdahl K, Gifford M, Kihlgren A. Clinical ethics support for healthcare personnel: an integrative literature review. *HEC Forum.* 2017;29:313–346.
6. Thompson AK, Faith K, Gibson JL, Upshur REG. Pandemic influenza preparedness: an ethical framework. BMC Medical Ethics. 2006;7:12.
7. Crowder S, Turvey BE. Ethics in the criminal justice professions. In: *Ethical Justice*. Elsevier; 2013.
8. Hick JL, Hanfling D, Wynia MK, Pavia AT. Duty to plan: health care, crisis standards of care, and novel coronavirus SARS-CoV-2. *National Academy of Medicine.* 2020.
9. Institute of Medicine. *Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response.* Washington (DC): National Academies Press; 2012.
10. Truog RD, Mitchell C, Daley GQ. The toughest triage—allocating ventilators in a pandemic. *New England Journal of Medicine.* 2020;382:1973–1975.
11. Emanuel EJ, Persad G, Upshur R, Thome B, Parker M, Glickman A, et al.

Fair allocation of scarce medical resources in the time of COVID-19. *New England Journal of Medicine.* 2020;382:2049–2055.
12. White DB, Lo B. A framework for rationing ventilators and critical care beds during the COVID-19 pandemic. *JAMA.* 2020;323(18):1773–1774.
13. Conn LG, et al. Restricted family presence for hospitalized surgical patients during the COVID-19 pandemic: experiences of providers and families. *Healthcare Policy.* 2022. PMCID: PMC9344808.
14.Aromataris E, Fernandez R, Godfrey CM, Holly C, Khalil H, Tungpunkom P. Summarizing systematic reviews: methodological development, conduct and reporting of an umbrella review approach. Int J Evid Based Healthc. 2015;13(3):132-140.
15.Shea BJ, Reeves BC, Wells G, Thuku M, Hamel C, Moran J, et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomized or non-randomized studies of healthcare interventions, or both. BMJ. 2017;358:j4008.
16. Institute of Medicine (US) Committee on Guidance for Establishing Standards of Care for Use in Disaster Situations. *Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations: A Letter Report.* Washington (DC): National Academies Press; 2009.
17. Fischkoff K, et al. Clinical ethics consultations during the COVID-19 pandemic surge at a New York City medical center. *J Clin Ethics.* 2020.
18. Johnson LS, Lesandrini J, Rozycki GS.
Use of the medical ethics consultation service in a busy Level I trauma center: impact on decision-making and patient care. *J Trauma.* 2005;59(6):1236–1240. 18. Goodman KW. Critical care computing: outcomes, confidentiality, and appropriate use. *Crit Care Clin.* 1996;12(1):109–122.
20. Almahmoud A, Khairallah A, Al Saqer S, AlQahtani S, Al Qahtani N, Albedawi AA, et al.Navigating the grey zone: a systematic review of ethical dilemmas and a decision-framework for nurses and anesthesiologists in conflict zones. *J Med Life Sci.* 2025;7(4):847–857.
21. Riedel P-L, Kreh A, Kulcar V, Lieber A, Juen B. A scoping review of moral stressors, moral distress and moral injury in healthcare workers during COVID-19. *Int J Environ Res Public Health.* 2022;19(3):1666.
22. Scoglio AAJ, Stelson EA, Becene I, Marquez CI, Rich-Edwards JW. A mixed-methods analysis of moral injury among healthcare workers during the COVID-19 pandemic. *PLoS One.* 2024;19(7):e0304620.
23. Berlinger N, Wynia M, Powell T, Hester DM, Milliken A, Fabi R, et al. Ethical framework for health care institutions responding to novel coronavirus SARS-CoV-2 (COVID-19). *Hastings Cent Rep.* 2020.
24.Ghanbari V, Ardalan A, Zareiyan A, Nejati A, Hanfling D, Bagheri A, et al. Ethical prioritization of patients during disaster triage: a systematic review of current evidence. Int Emerg Nurs. 2019;43:126–132.
25. Tyrrell CSB, Mytton OT, Gentry SV, Thomas-Meyer M, Allen JLY, Narula AA, et al. Managing intensive care admissions when there are not enough beds during the COVID-19 pandemic: a systematic review. Thorax. 2021;76(3):302–312.
26.Leider JP, DeBruin D, Reynolds N, Koch A, Seaberg J. Ethical guidance for disaster response, specifically around crisis standards of care: a systematic review. Am J Public Health. 2017 Sep;107(9):e1–e9.
27.Khaji A, et al. Ethical issues in technological disaster: a systematic review of literature. Arch Bone Jt Surg. 2018 Jul;6(4):269–276.
28.Romney D, et al. Allocation of scarce resources in a pandemic: a systematic review of US state crisis standards of care documents. Disaster Med Public Health Prep. 2020;1–7.

29.Grisel B, et al. The ethical obligation to treat infectious patients: a systematic review of reasons. Clin Infect Dis. 2024;79(2):339–347.
30.Chakraborty R, et al. Setting up a just and fair ICU triage process during a pandemic: a systematic review. Healthcare (Basel). 2024;12(2):146.
31.Piscitello GM, et al. Variation in ventilator allocation guidelines by US state during the coronavirus disease 2019 pandemic: a systematic review. JAMA Netw Open. 2020 Jun 1;3(6):e2012606.
32.O'Sullivan L, et al. Ethical values and principles to guide the fair allocation of resources in response to a pandemic: a rapid systematic review. BMC Med Ethics. 2022;23(1):70.
33.Bouchlaghem MA, et al. Ethical issues raised in the care of the elderly during pandemics: a systematic review. J Med Ethics. 2025.
34.Cleveland Manchanda EC, et al. Crisis standards of care in the USA: a systematic review and implications for equity amidst COVID-19. J Racial Ethn Health Disparities. 2021 Aug;8(4):824–836.
35.Thangaraju P, et al. Ethical challenges at the time of the COVID-19 pandemic: a systematic review. Coronaviruses. 2023;4(2):e150823219730.
36.Czyz-Szypenbejl K, et al. Conflict sources and management in the ICU setting before and during COVID-19: a scoping review of the literature. Int J Environ Res Public Health. 2022;19(3):1875.
37.Cuthbertson J, et al. Ethical decision making in disaster and emergency management: a systematic review. Prehosp Disaster Med. 2023.
38.Kelly M, et al. End-of-life care in natural disasters including epidemics and pandemics: a systematic review. BMJ Support Palliat Care. 2023;13(1).

8.Annexes

Annex 1. Detailed Search Strategy

PubMed Search Strategy

Search conducted on: March 15, 2026

Search fields: Title/Abstract and MeSH terms

("ethics"[MeSH Terms] OR ethics OR "ethical dilemmas" OR "ethical challenges" OR "moral distress" OR "moral injury")

AND

("crisis" OR "emergency" OR "pandemic" OR "disaster" OR "armed conflict" OR "humanitarian" OR "resource scarcity")

AND

("healthcare" OR "physician" OR "doctor" OR "clinical decision-making" OR triage OR rationing OR "crisis standards of care" OR "public health ethics" OR "disaster ethics")

Filters applied:

- Language: English

- Publication date: 2000–2025

Scopus Search Strategy

Search conducted on: March 15, 2026

Search fields: Title, Abstract, Keywords

(TITLE-ABS-KEY (ethics OR "ethical dilemmas" OR "ethical challenges" OR "moral distress" OR "moral injury"))

AND

(TITLE-ABS-KEY (crisis OR emergency OR pandemic OR disaster OR "armed conflict" OR humanitarian OR "resource scarcity"))

AND

(TITLE-ABS-KEY (healthcare OR physician OR doctor OR "clinical decision-making" OR triage OR rationing OR "crisis standards of care"))

Filters applied:

- Language: English
- Publication date: 2000–2025

Google Scholar Search Strategy

Search conducted on: March 15, 2026

Search string:

"ethical dilemmas" healthcare crisis OR pandemic OR disaster physician OR doctor

Search settings:

- Results sorted by relevance
- First 10 pages screened
- Screening was stopped after no additional relevant studies were identified.

Google Scholar was used as a supplementary search source to identify potentially.

Annex 2. Characteristics of Included Studies

Author	Study type	Country/ Region	Crisis type	Population	Setting	Ethical dilemma	Ethical frameworks	Key findings
Ghanbari et al. 2019	Systematic review	Global	disaster	Healthcare context	Disaster and mass-casualty triage	Ethical prioritization and allocation of scarce resources during disasters	Utilitarianism; justice; triage principles	Identified medical (need, survivability) and non-medical factors (maximizing lives saved, protecting vulnerable groups) guiding ethical triage decisions.
Tyrrell et al. 2021	Systematic review	Global	Pandemic (COVID-19)	Healthcare professionals	ICU resource allocation during the COVID-19 pandemic	Ethical decision-making in allocating scarce ICU beds and ventilators during resource shortages	Triage frameworks; fairness; resource allocation principles	Found major variation in international ICU triage guidelines; most rely on utilitarian principles (maximising lives saved) and criteria such as likelihood of survival, comorbidities, and frailty. Highlights need for clearer ethical frameworks and consistent guidelines for ICU triage.
Leider et al. 2017	Systematic review	Global	Disaster	Healthcare professionals	Disaster and public health emergency response	Ethical frameworks for crisis standards of	Crisis standards of care; utilitarianis	Identified major ethical themes in disaster

						care and allocation of scarce resources during disasters	m; equity; duty to care	response including triage decisions, duty to care, utilitarian allocation of resources, equity, reciprocity, and moral distress among clinicians. Emphasizes the need for clear ethical frameworks to guide crisis standards of care before disasters occur.
Khaji et al. 2018	Systematic review	Global	Technological disaster	Healthcare professionals	Technological disaster response (e.g., nuclear disasters)	Ethical challenges in providing medical care during technological disasters.	Duty of care; beneficence; resource allocation	Identified three major ethical issues: duty of healthcare workers to provide care despite personal risk, ethical allocation of scarce resources, and justification of mandatory evacuation. Emphasizes balancing beneficence with healthcare worker safety and fairness in resource allocation.

Romney et al. 2020	Systematic review	USA	Pandemic	Healthcare system	Pandemic preparedness and crisis standards of care in the USA	Allocation of scarce medical resources and development of crisis standards of care during pandemics.	Crisis standards of care; justice; resource allocation principles	Many US states lacked comprehensive crisis standards of care; ethical frameworks emphasize fairness, justice, and duty to care in resource allocation.
Grisel et al. 2024	Systematic review	Global	Pandemic	Healthcare professionals	Infectious disease pandemics in healthcare systems	Whether healthcare providers have an ethical obligation to treat infectious patients despite personal risk	Duty to care; autonomy; risk vs obligation	Most literature supports a duty to treat (≈82%), but COVID-19 increased acceptance of treatment refusal due to concerns about personal risk, family safety, and workers' rights.
Chakraborty et al. 2024	Systematic review	South Asia	Pandemic	Healthcare professionals	ICU triage during the COVID-19 pandemic	Ethical allocation of scarce ICU resources and fair patient prioritization during pandemics	Social justice; fairness; triage principles	The review found that ethical frameworks for ICU triage are inconsistently applied, with limited explicit ethical guidance in pandemic plans; it highlights the need for transparent, equitable, and social-justice-

								based frameworks for ICU resource allocation during crises.
Piscitello et al. 2020	Systematic review	USA	Pandemic	Healthcare system	Ventilator allocation policies in the USA during COVID-19	Ethical allocation of scarce ventilators and fairness in triage decisions during public healthcare crises	Resource allocation; triage principles; equity	The review found that only 26 U.S. states had publicly available ventilator allocation guidelines and these guidelines varied significantly in criteria such as exclusion rules, scoring systems (e.g., SOFA), priority groups, and withdrawal policies, raising concerns about inequity in access to life-saving ventilation during pandemics.
O'Sullivan et al. 2022	Rapid systematic review	Global	Pandemic	Healthcare system	Pandemic resource allocation in healthcare systems	Ethical allocation of scarce healthcare resources during pandemics	Equity; justice; utility; reciprocity; transparency	The review identified key ethical principles guiding resource allocation during pandemics, including equity, justice,

								transparency, reciprocity, duty to care, liberty, stewardship, trust, and proportionality, emphasizing that resource allocation decisions should be guided by multiple ethical values and informed by public engagement and structured frameworks.
Bouchlaghem et al. 2025	Systematic review	Global	Pandemic	Healthcare professionals	Healthcare systems during the COVID-19 pandemic (geriatric care)	Ethical dilemmas in caring for elderly patients during pandemics (triage decisions, ICU access, vaccine allocation, isolation and autonomy)	Justice; autonomy; equity	Ethical dilemmas included triage decisions, resource allocation, and infection-control measures, with concerns about age-based prioritization and patient autonomy, highlighting the need for improved triage protocols and communication.
Manchanda et al. 2021	Systematic review	USA	Pandemic	Healthcare system	Crisis standards of care in U.S. healthcare	Ethical allocation of scarce medical	Crisis standards of care; equity; justice	Crisis Standards of Care vary across U.S.

					systems during COVID-19	resources (e.g., ventilators) and equity concerns in crisis standards of care		states, often using SOFA scores and comorbidities for triage, which may disadvantage marginalized populations, highlighting the need for equitable and transparent allocation frameworks.
Thangaraju et al. 2023	Systematic review	Global	Pandemic	Healthcare professionals	Global healthcare systems during the COVID-19 pandemic	Ethical challenges related to resource allocation, triage decisions, equity in access to care, patient autonomy, and decision-making during health crises	Utilitarianism; individual ethics; resource allocation	Ethical issues during the COVID-19 pandemic mainly involved resource allocation, equity in access to care, and patient rights, highlighting tensions between public health priorities and individual autonomy.
Czyz-Szypenbejl et al. 2022	Scoping review	Global	Pandemic	Healthcare professionals	Intensive Care Units during the COVID-19 pandemic	Ethical conflicts among healthcare professionals related to resource shortages, end-of-life decisions, communication problems, and staff safety	Not specified	Ethical conflicts in ICUs increased during COVID-19 due to resource shortages, limited family involvement, and communication challenges,

								highlighting the need for improved conflict management and leadership support.
Cuthbertson et al. 2023	Systematic review	Global	Disaster	Healthcare system	Disaster and emergency management systems	Ethical decision-making in disasters, particularly regarding resource allocation, fairness, and use of ethical frameworks in emergency decision making	Humanitarian principles	Ethical guidance exists mainly in humanitarian systems, while many emergency management agencies lack clear ethical frameworks, highlighting the need for structured guidance for decision-making during disasters.
Kelly et al. 2021	Systematic review with narrative synthesis	Global	Disaster / Pandemic	Healthcare professionals	Healthcare systems during natural disasters and pandemics	Balancing compassionate end-of-life care with disaster response constraints, including resource shortages, restricted family presence, triage decisions, and maintaining dignity for dying patients during disasters.	Not specified	Disasters disrupt end-of-life care through resource shortages, restricted visitation, and increased patient isolation, highlighting the need for better disaster planning and ethical guidelines.

Annex 3: AMSTAR 2 Quality Assessment of Included Reviews

Ref.	Author (Year)	Protocol (registered)	Search Strategy (comprehensive)	Duplicate Selection	Duplicate Data Extraction	List of Excluded Studies with Reasons	Risk of Bias / Quality Appraisal	Overall AMSTAR 2 Confidence Rating
24.	Leider (2017)	N	N	N	N	N	N	Critically low
25.	Khaji (2018)	N	Y	N	N	N	N	Critically low
26.	Romney (2020)	N	N	N	N	N	N	Critically low
27.	Grisel (2024)	N	Y	Y	Y	N	N	Critically low
28.	Chakraborty (2024)	N	N	N	N	N	N	Critically low
29.	Piscitello (2020)	N	N	Y	N	N	N	Critically low
30.	O'Sullivan (2022)	Y	Y	Y	Y	N	N	Critically low
31.	Bouchlaghem (2025)	Y	Y	Y/PY	PY	N	N	Critically low
32.	Cleveland Manchanda (2021)	N	N	Y	N	N	N	Critically low
33.	Thangaraju (2023)	N	N	N/PY	N	N	N	Critically low
34.	Czyż-Szypenbejl (2022)*	N	N	N	N	N	N	Critically low*
35.	Cuthbertson (2023)	N	Y	Y	PY	N	Y	Critically low
36.	Kelly (2023)	Y	Y	PY	PY	N	Y	Low
37.	Ghanbari (2019)	Y	Y	N	N	N	Y	Low
38.	Tyrrell (2021)	Y	Y	Y	Y	N	Y	High

Note: Y = Yes; PY = Partial Yes; N = No.
* Scoping review; AMSTAR 2 was applied with caution because the tool is designed primarily for systematic reviews.

Annex 4: Thematic Matrix of Included Reviews

Ref.	Resource Allocation (Scarce Medical Resources)	Triage / Prioritization of Patients	Duty to Care (Obligation of Healthcare Professionals)	Autonomy / End-of-life Care
24. Leider JP, et al., 2017	✓	✓	✓	–
25. Khaji A, et al., 2018	✓	–	✓	–
26. Romney D, et al., 2020	✓	✓	–	–
27. Grisel B, et al., 2024	–	–	✓	–
28. Chakraborty R, et al., 2024	✓	✓	–	–
29. Piscitello GM, et al., 2020	✓	✓	–	–
30. O'Sullivan L, et al., 2022	✓	–	✓	–
31. Bouchlaghem MA, et al., 2025	✓	✓	–	✓
32. Cleveland Manchanda EC, et al., 2021	✓	✓	–	–
33. Thangaraju P, et al., 2023	✓	✓	✓	✓
34. Czyż-Szypenbejl K, et al., 2022	–	–	–	–
35. Cuthbertson J, et al., 2023	✓	–	–	–
36. Kelly M, et al., 2023	✓	–	–	✓
37. Ghanbari V, et al., 2019	✓	✓	–	–
38. Tyrrell CSB, et al., 2021	✓	✓	–	✓

Note: A tick (✓) indicates that the theme was explicitly addressed in the review. A dash (–) indicates that the theme was not a primary focus or was not explicitly discussed.