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Wilhelmy, Saskia; Ulrich, Rebecca; Groß, Dominik

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# Just two Sides of the Same Coin? Ethical Issues and Discourses on COVID-19 and Ebola. A Comparative Literature Analysis

Saskia Wilhelmy, Rebecca Ulrich & Dominik Groß\*

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**Abstract:** »Nur zwei Seiten derselben Medaille? Ethische Fragen und Diskurse über COVID-19 und Ebola. Eine vergleichende Literaturanalyse«. Infectious diseases pose a continuing threat to human life. In the case of pandemics, they can also grow into massive challenges for society as a whole – not only from a medical but also from an ethical perspective. This article takes the current COVID-19 pandemic as the occasion for an empirical medico-ethical analysis. It explores the ethical dimensions and discourses on COVID-19 and the Ebola epidemics (West Africa, Democratic Republic of Congo). Additional attention is paid to the question whether and to what extent the ethical issues raised differ and how the possible disparities can be explained. Using a methodological two-step approach (systematic literature review; qualitative content analysis), we were able to identify nine categories that map the ethical dimensions of recent outbreaks of these two diseases: (1) Prioritization of health, (2) Equitable access to resources, (3) Adequate information, (4) Health worker vulnerability, (5) Stigma and discrimination, (6) Research ethics, (7) Measures restricting freedom, (8) Global health justice, (9) Environmental ethics.

**Keywords:** Medical ethics, moral values, disease outbreak, pandemic, infectious disease, lessons learned, qualitative research, categorization.

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## 1. Introduction

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After the World Health Organization (WHO) first declared a Public Health Emergency of International Concern (PHEIC) for pandemic H1N1 influenza in 2009, four other infectious diseases with this status have followed to date, including two Ebola epidemics in West Africa (2013–2015) and the

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\* Saskia Wilhelmy, Institute for History, Theory and Ethics in Medicine, RWTH Aachen University, Wendlingweg 2, 52074 Aachen, Germany; [swilhelmy@ukaachen.de](mailto:swilhelmy@ukaachen.de).  
Rebecca Ulrich, Institute for History, Theory and Ethics in Medicine, RWTH Aachen University, Wendlingweg 2, 52074 Aachen, Germany; [rulrich@ukaachen.de](mailto:rulrich@ukaachen.de).  
Dominik Groß, Institute for History, Theory and Ethics in Medicine, RWTH Aachen University, Wendlingweg 2, 52074 Aachen, Germany; [dgross@ukaachen.de](mailto:dgross@ukaachen.de).

Democratic Republic of Congo (DRC, 2018–2020) and the recent COVID-19 pandemic (Wilder-Smith and Osman 2020), which is still virulent.

Outbreaks of this magnitude pose not only medical and public health challenges, but also ethical ones. This is already evident in the WHO's response in 2015 with a training manual, "Ethics in Epidemics, Emergencies, and Disasters," for research and patient care (WHO 2015). But are the ethical challenges of Ebola and COVID-19 even comparable? And most importantly, are they perceived similarly and discussed analogously, or do the differences predominate?

These are precisely the questions that form the starting point of our analysis. The aim of this paper is to trace the ethical discourses on the COVID-19 pandemic and the recent Ebola epidemics on the basis of a broad literature review and to identify thematic foci. Beyond the actual comparison, we are interested in how any differences can be explained and interpreted.

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## 2. Methodology

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The comparative analysis of the ethical discourses on the Ebola and COVID-19 outbreaks presented here was based on a two-stage procedure: First, a systematic literature review was conducted; this was followed by a qualitative content analysis according to Mayring (2014). The review covers the period from the start of the COVID-19 outbreak in late 2019 to May 2021 (the first articles on COVID-19 related to Ebola were published in January 2020); content included both the 2013–2016 Ebola epidemic in West Africa and all subsequent outbreaks in the Democratic Republic of Congo (DRC; 2018–2020), i.e., Ebola outbreaks *before* and *during* the COVID-19 pandemic published during the study period (2020–2021) were included.

### 2.1 Search Strategy

To find relevant articles on the topic, the online research platform "Web of Science"<sup>1</sup> was used, which provides access to scientific citation and literature databases. The platform enables an interdisciplinary search for articles from the academic disciplines of medicine, natural sciences, humanities, social sciences, and economics. This interdisciplinarity was critical to the article search because disease outbreaks are events that affect society as a whole and, accordingly, are reflected in many scientific disciplines. Furthermore, the discussion of ethical issues of this magnitude was not limited to any specific discipline. On the contrary, such ethical implications are considered to have a societal significance that transcends disciplinary boundaries.

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<sup>1</sup> Web of Science: <https://www.webofscience.com>.

Accordingly, to ensure a comprehensive view of the ethical dimension of recent outbreaks of the two diseases, an examination of articles from different disciplines was essential.

The search strategy included a combination of keywords related to the two terms “Ebola” and “COVID” (search query: [ALL=((ebola OR EVD) AND (covid OR corona OR sars))]). Additionally, we filtered for language (English only), publication date (timespan 2020–2021), and document type (articles). A combined search with the term complex on “ethics” (e.g., morale, value) was avoided in this search step: first, to obtain a broader search result and, second, due to the assumption (later confirmed) that ethical topics are also included in articles that do not use the term complex “ethics” but address ethical topic spectrums with terms such as justice, solidarity, or responsibility.

The researched articles were then examined according to predetermined criteria. Exclusion conditions were also established: articles that were not available online as full text (approximately 5% of articles), in which neither Ebola nor COVID was a topic (approximately 10%; e.g., listed only in keywords), in which only one of the two infectious diseases was addressed without reference to the other (articles only on Ebola: approximately 5%; and only on COVID: approximately 60%), or articles in which SARS-CoV-1 was addressed rather than SARS-CoV-2 or COVID-19 were not considered.

## 2.2 Categories Extraction

To extract the discussed ethical issues of the Ebola and COVID-19 outbreaks from the articles, a qualitative content analysis according to Mayring (2014) was performed using deductive category assignment. To do so, we derived corresponding categories from 11 normative challenges to COVID-19 that were addressed in Groß (2020).<sup>2</sup> The articles we researched were filtered to determine whether such themes were reflected in their content and then subsumed under the categories accordingly (deductive category assignment). Content from articles in which ethical issues are discussed as well as those in which they are merely mentioned were considered. The categories of Groß (2020) served as a dynamic and thus changeable starting point and were adapted or extended depending on the content of the articles (inductive category assignment). The review and evaluation of all articles was performed in different steps by the authors, who resolved assignment differences by consensus.

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<sup>2</sup> The categories are: 1) adequate information, 2) measures restricting freedom, 3) individual solidarity obligations, 4) generational solidarity, 5) prioritization of health, 6) triage and prioritization criteria, 7) patient autonomy, 8) research ethics, 9) equal access to resources, 10) endangered health care workers, 11) renormalization processes.

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## 3. Results

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### 3.1 Quantitative Results and Bibliometric Characteristics

The systematic literature search yielded a total of 444 professional articles based on the defined keyword combination of “Ebola” and “COVID.” After reviewing the articles using predefined criteria, the number of articles was reduced to 58. Qualitative content analysis then led to the exclusion of a further 19 articles, resulting in a total sample, and thus database, of 39 articles (see appendix).

A search combination using the term “ethics” and its derivatives was not performed for the aforementioned reasons, but these terms were nevertheless cross-checked in the articles of the database. Here it was found that “ethical” terms (such as ethics or morale) were used in 24 of the 39 articles – although in four articles these referred only to formal aspects, e.g., reference to the submission of an ethics statement, compliance with ethical standards, or vote of an ethics committee. Nevertheless, these four articles and another 11 articles in the database had “ethical” content related to Ebola and COVID without explicitly using these terms in the text. The total of 39 professional articles came from 30 different journals with different scientific focuses (cf. table 1), in which 25 articles were published in 2020 and 14 articles in 2021.

Regarding the affiliations of the authors in the articles, it can be noted that they are located in 14 low-income countries (LIC; Sub-Saharan Africa [DRC, Mali, Sierra Leone, Uganda], South Asia [Afghanistan]) and lower-middle income countries (LMC; Sub-Saharan Africa [South Africa, Kenya, Nigeria, Zambia, Zimbabwe], Middle East & North Africa [Egypt, Iran], South Asia [India], East Asia & Pacific [Philippines]). Additionally, authors were affiliated in 17 upper-middle income countries (UMC; East Asia & Pacific [China], Middle East & North Africa [Lebanon], Latin America & Caribbean [Peru]) and high-income countries (HIC; East Asia & Pacific [Australia, Hong Kong, Singapore], Europe & Central Asia [Austria, Belgium, Germany, Netherlands, Norway, United Kingdom (UK), Sweden, Switzerland], Middle East & North Africa [Saudi Arabia], North America [Canada, United States (US)]).

**Table 1** Bibliometric Characteristics of the Journals in our Database (n = 30 journals, n = 39 articles)

Journal	Journal contrib. by country/region (rank 1/rank 2)*	Journal rubric**	Freq. of articles (n)
1. African Journal of Primary Health Care & Family Medicine	South Africa/Nigeria	Primary health care	1
2. AIMS Public Health	USA/Iran	Health care sciences and services	1
3. American Journal of Tropical Medicine and Hygiene	USA/UK	Public, environmental, and occupational health; Tropical medicine	2
4. BMC Public Health	USA/UK	Public, environmental, and occupational health	2
5. Critical Public Health	UK/USA	Public, environmental, and occupational health; Social sciences, biomedical	1
6. Developing World Bioethics		Ethics; Medical ethics	2
7. Environment		Environmental sciences; Environmental studies	1
8. Epidemiologia & Prevenzione	Italy/UK	Public, environmental, and occupational health	1
9. Frontiers in Psychology	USA/China	Psychology, multidisciplinary	2
10. Healthcare	USA/South Korea	Health care sciences and services Health policy and services	1
11. Health Security	USA/UK	Public, environmental, and occupational health	1
12. International Journal of Infectious Diseases	USA/China	Infectious Diseases	1
13. International Organization	USA/UK	Political science International relations	1
14. Journal of Bioethical Inquiry	Australia/USA	Ethics Medical ethics Social issues Social sciences, biomedical	3
15. Journal of Black Studies	USA/South Africa	Ethnic studies Social sciences, interdisciplinary	1
16. Journal of Global History	USA/UK	History	1
17. Journal of Health Communication	USA/Singapore	Communication; Information science and library science	1
18. Journal of Human Behavior in the Social Environment	USA/South Africa	Social work	1
19. Journal of Medical Ethics	UK/USA	Ethics; Medical ethics; Social issues Social sciences, biomedical	2
20. Journal of Psychiatric Research	USA/China	Psychiatry	1

21. Journal of the Royal Anthropological Institute	USA/UK	Anthropology	1
22. npj Vaccines	USA/UK	Immunology; Medicine, research, and experimental	1
23. Pan African Medical Journal	Morocco/Nigeria	Public, environmental, and occupational health	1
24. Public Health Reports	USA/Canada	Public, environmental, and occupational health	1
25. Social Studies of Science	USA/UK	History and philosophy of science	1
26. Tropical Medicine and Infectious Disease	USA/Australia	Infectious diseases; Parasitology; Tropical medicine	1
27. Vaccines	USA/Italy	Immunology; Medicine, research, and experimental	1
28. Wiener Klinische Wochenschrift	Austria/Germany	Medicine, general, and internal	1
29. World Development	USA/UK	Development studies; Economics	3
30. Yale Journal of Biology and Medicine	USA/Australia	Biology	1

\* Countries/Regions that have contributed the most papers to the journal in the most recent three-year period, indexed by Journal Citation Reports (JCR; Clarivate, <https://jcr.clarivate.com/jcr/home> (Accessed August 10, 2021)); \*\* Journal rubrics in which the Journals were categorized by JCR.

### 3.2 Qualitative Results of the Content Analysis and Extracted Categories

The results of the qualitative content analysis provide insights into the range of ethical challenges addressed in the articles comparing the Ebola and COVID-19 disease outbreaks. Based on the 11 categories of Groß (2020) that served as the starting point for deductive analysis of the articles, the content of the articles in our database could ultimately be subsumed into six of these categories. Accordingly, five categories were not picked up in the articles, namely (3) individual solidarity obligations, (4) generational solidarity, (6) triage and prioritization criteria, (7) patient autonomy, and (11) renormalization processes. Newly added, i.e., inductively generated from the article contents, were three categories: stigma and discrimination, global health justice, and environmental ethics.

The qualitative content analysis thus yielded a total of nine (deductively and inductively obtained) categories from our article database (cf. table 2). Within an article, several different categories could be represented, and some categories had subcategories. In the following, the categories are presented, ordered by the frequency of their occurrence in the articles.

**Table 2** Generated Ethics Categories on Ebola and COVID-19

Categories	Freq. of articles with these categories (n)	Type of category assignment	Assignment of ethical principles*
1. Prioritization of health	15	deductive	beneficence, non-maleficence, autonomy
2. Equal access to resources	12	deductive	justice, solidarity
3. Adequate information	12	deductive	beneficence, non-maleficence
4. Endangered health care workers	6	deductive	beneficence, non-maleficence, justice, solidarity
5. Stigma and discrimination	6	inductive	beneficence, non-maleficence, justice, solidarity
6. Research ethics	5	deductive	beneficence, non-maleficence
7. Measures restricting freedom	4	deductive	autonomy, beneficence, non-maleficence
8. Global health justice	4	inductive	justice, solidarity
9. Environmental ethics	2	inductive	beneficence, non-maleficence, justice, solidarity

\* Referring to the “Principles of Biomedical Ethics” (Beauchamp and Childress 2009) regarding disease outbreaks according to Druml (2020).

#### *Category 1: Prioritization of health*

The category that appeared most frequently in the articles was that of “prioritizing health.” This refers to the view of health as an absolute good, accompanied by the demand to do everything possible to keep people healthy or protect them from death. This view is especially valid for major disease outbreaks that affect public health, such as Ebola or COVID-19. The opposite position is to regard health not as an absolute good, but as an equal good alongside other goods. Accordingly, it would be just as legitimate not to invest all available resources in the protection and promotion of health during a disease outbreak, and thus to accept the death of people, in order to also grant other aspects of (public) life, since they also have an influence on the life expectancy, quality, and opportunities (education, infrastructure, crime control, civil liberties, etc.). The articles examined address these weighting issues, noting in particular that other aspects of (public) life are eclipsed or neglected by disease outbreak control.

Four different subcategories could be identified. (a) Socioeconomic impact: Due to the priority given to disease outbreak control, there are adverse side effects such as loss of income, difficulty in meeting food needs, and increased crime. (b) Impact on other diseases: By prioritizing protective measures for

disease outbreaks, prevention of other diseases in the population is neglected or discontinued, making them an increased (latent) health threat to people. (c) Impact on vulnerable groups: Disease outbreak control measures displace the needs and protection of vulnerable populations (e.g., gender-based violence against women). (d) Impact on cultural practices: Disease outbreak control measures partially compromise or destroy previous cultural or traditional practices (e.g., funeral rituals, which impedes grief recovery).

*Category 2: Equal access to resources*

A total of 12 articles had content that fell under the category of “equal access to resources.” This included equitable access to health-sustaining, life-saving, or medical resources and ultimately preventive measures during outbreaks of Ebola and COVID-19. By not providing equal access to certain resources, people can be disadvantaged or harmed. Three specific access issues are to be grouped under this category, each affecting different resources. (a) Access to protective materials: insufficient access to resources to contain a disease outbreak (testing, protective equipment, health workers, hygiene items, sanitation, etc.) leads to further spread of a disease and endangerment of people. (b) Access to research: access to research and corresponding research results is not equally guaranteed, so that derived information for combating a disease outbreak is not equally available to all. (c) Access to technology: use of unadapted technology in regions where digital divide exists is not effectively applicable.

*Category 3: Adequate information*

The category “adequate information” was present just as frequently as the category “equal access to resources” (n = 12 articles). It describes the adequate information and education of the public regarding available medical knowledge and appropriate measures in the event of disease outbreaks by medical experts, health politicians, government representatives, scientists, or media representatives. They have a special responsibility to the public to provide appropriate information and knowledge, i.e., the current state of available scientific information, or to meet the requirement of care, for example, to counteract panic, fears, or false actions. A special role is played in this context by so-called fake news, especially during the COVID-19 outbreak. Fake news can achieve a high reach and lead to risky actions or negligent behavior; moreover, such fake news counteracts the requirement of truthfulness (veracity).

*Category 4: Endangered health care workers*

Articles that specifically addressed the hardships faced by health care workers as a result of their work during disease outbreaks such as Ebola and COVID-19 were subsumed under the category of “endangered health care

workers” (n = 6 articles). Health care workers involved in the medical care of infected Ebola or COVID-19 patients faced particular hardships. This concerns, on the one hand, the increased stressful working conditions due to protective measures and, on the other hand, the increased risk of infection – both of which pose a health threat and both of which have an ethical dimension at the same time. The content of the articles assigned to this category shows, on the one hand, the health and psychological effects caused by health workers in crisis situations (e.g., fear of infecting family members). On the other hand, it discusses what it means to be part of the safety-sensitive persons and whether it is ethically justifiable for health care personnel to refuse to care for infected patients for their own safety or what special duties they have in society.

*Category 5: Stigma and discrimination*

This inductively obtained category concerns the stigma and also various forms of discrimination faced by individuals as a result of disease outbreaks such as Ebola and COVID-19 (n = 6 articles). Severe or uncontrollable disease outbreaks are often accompanied by anxiety, feelings of powerlessness, or even anger, which can take the form of increased stigma toward individuals or even discriminatory actions. Among these, different views can be found in the articles, which consider both existing and increased negative attitudes towards marginalized groups during disease outbreaks as well as the resulting health consequences, such as an increased mortality rate.

*Category 6: Research ethics*

The category “research ethics” comprises different contents of articles (n = 5 articles), which are related to ethical aspects of clinical research on humans concerning outbreaks of diseases like Ebola and COVID-19. These include considerations of vaccine development (e.g., pressure to act vs. safe research, ethical defensibility of vaccine research, or consideration of placebo in study design), mistrust of developed vaccines due to past poor research (esp. vaccine hesitancy), or use of vaccines that have not yet been sufficiently tested (esp. compassionate use).

*Category 7: Measures restricting freedom*

A measure used in disease outbreaks to contain the spread between people is quarantine or isolation – this containment measure played a role in both the Ebola and COVID-19 outbreaks. The category “measures restricting freedom” summarized content from articles (n = 4 articles) that encompass ethical challenges related to this form of prevention, which are caught between the need for solidarity (to protect all) and negative consequences of isolation (individuals); including the effects of isolation on patients, their relatives, and on health care workers, the renegotiation of closeness and distance in the social

context, the influence on privacy through control measures (case tracking), and the general consideration of the restriction of freedom as a violation of fundamental rights.

*Category 8: Global health justice*

Another inductively derived category, titled “global health justice,” includes content from three articles that address social justice in terms of fair distribution of resource, rights, and opportunities at the global level in relation to disease outbreaks such as Ebola and COVID-19. The category includes content that addresses the demand for a solidarity-based “whole-of-world” approach and criticizes the failure of previous solidarity-based approaches and the withdrawal from international solidarity during disease outbreaks.

*Category 9: Environmental ethics*

The category “environmental ethics” (n = 2 articles), also obtained inductively, includes content that reflects ethically on the interplay between human health and the environment. This included, first, an article that generally addresses the lack of ecological perspective on the interaction of humans and nature and the resulting steady health impact of disease outbreaks. And secondly, an article that discusses the amplification of climate change through disease outbreak control and that safety measures (such as disposable materials) against disease outbreaks pollute the environment (through waste, chemical agents).

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## 4. Discussion

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Our study sought to examine the ethical challenges that come to light in the context of disease outbreaks in a comparative analysis between Ebola and COVID-19. In particular, the focus of the study was on the ethical discourses and possible disparities between these outbreaks – i.e., how are ethical challenges related to these different disease outbreaks? Does the localization of Ebola outbreaks in West and Central Africa and the global spread of the COVID-19 pandemic impact (different) ethical challenges? In the following, the quantitative and qualitative research results are critically reflected.

### 4.1 Lessons Learned

Qualitative examination of the articles (n = 39 articles) revealed that despite the very different viral genera and resulting diseases, the ethical dimensions of the Ebola and COVID-19 outbreaks have numerous similarities. “Lessons learned” play a special role in this context. This popular term, which has found expression in the field of project and knowledge management, plays a

particularly important role in the field of emergency and crisis management. The term is used to describe experiences from activities or events that should be taken into account for future actions – for example, related to the spread of infectious diseases, living with, or surviving after an outbreak with high infection rates. Numerous studies can be found that look at lessons learned from individual disease outbreaks, including for Ebola (Coltart et al. 2017; Quaglio et al. 2016) or for COVID-19 (Khanna et al. 2020; Fang et al. 2021). Distilling lessons learned for future action can also be applied to the ethical dimension of a disease outbreak, or the ethical challenges that may arise in the context of an outbreak. In our database, we found that a large proportion of articles identified specific lessons learned from Ebola outbreaks, which were then related to the COVID-19 pandemic with varying summations, such as citing that there was a reinforcement of ethical challenges in COVID-19 that were already identified in Ebola; one article explicitly criticizes the failure to draw appropriate (moral) consequences from the available evidence. In total, 18 articles explicitly use the phrase “lessons learned” with reference to experiences from past outbreaks – 78% of these articles explicitly refer to Ebola outbreaks (from recent outbreaks in 2013–2016 and 2018–2020) and 22% make general references to previous outbreaks without specifying them in more detail.

#### 4.2 Differentiated Authorships, Differentiated Perspective

Our methodological approach, i.e., searching and examining articles comparing both the Ebola outbreaks and COVID-19 pandemic, allowed us to conduct a nuanced analysis of the ethical dimension. COVID-19 is a global challenge for countries, while the Ebola outbreaks were seen as a primary challenge of LICs, specifically West Africa and parts of Central Africa. Linking the outbreaks of these two infectious diseases to each other in our study allowed for transnational and national perspectives. On the one hand, a transnational view by using comparisons to past Ebola outbreaks in African countries as a reference point for understanding or reappraising COVID-19 in a wide variety of countries worldwide. On the other hand, national perspectives are made possible, starting from countries that have experienced and survived Ebola and now have the additional challenges of a COVID-19 pandemic. Both perspectives contribute to a more nuanced picture of the ethical dimension of outbreaks.

These perspectives (transnational and national) are also reflected in the bibliometric characteristics of the articles from our database, considering authors’ affiliations on the one hand and research collaborations on the other. In total, authors from 17 different HICs/UMCs and from a total of 14 LICs/LMCs are represented in the articles. Out of a total of 39 articles in the database, 19 articles are written by authors who reside exclusively in

HICs/UMCs and 5 articles indicate authors who reside exclusively in LICs/LMCs. This finding is also consistent with the ranking of the contributions of papers to the journals from our database (cf. table 1); here, too, HICs/UMCs are predominantly represented in the first two places of the ranking (in a total of 26 journals) and LICs/LMCs are represented in only 10 journals. That HICs/UMCs are overrepresented in research is a well-known fact (Plancikova, Duric, and O'May 2020) – at the same time it can be noted that there is a steady upward trend in terms of research (involvement) in health research in LICs/LMCs (Franzen, Chandler, and Lang 2017) or the rise of global collaboration over the last decades (Dimitris, Gittings, and King 2021; Maher and Van Noorden 2021). These two aspects are also reflected in our database, both in the journal characteristics and in those of the articles; for example, we note that a total of 12 articles in our database are “research collaborations,” meaning that authors affiliated in both LICs/LMCs and HICs/UMCs were jointly involved. Collaborations with authors affiliated in African countries are particularly frequent (n = 9 articles) – this can be explained by the fact that the affiliations were equated with the countries in West and Central Africa where the Ebola outbreaks occurred.

#### 4.3 Maintaining Health at any Price?

“Health is not everything, but without health, everything is nothing” – what the medically knowledgeable German philosopher Arthur Schopenhauer (1788–1860) once formulated as a wisdom of life encompasses an ethical dilemma that was revealed to an increased degree during the COVID-19 pandemic. Health is a nonnegotiable good and thus preserving it at all costs suggests a position that is reflected in the public health sector, especially in measures of infection protection in the current pandemic fight. Protective measures used against coronavirus include, for example, typical infection control measures such as the use of protective clothing like gloves, face masks, gowns (exposure prevention), the administration of vaccinations (disposition prevention), or the use of custodial measures such as mass quarantine.

There were protests around the world about the proportionality of the measures used – on the one hand because of inadequate protection against the virus (see the discussion on category 2 “Equal access to resources”), or on the other hand because of excessive protection against the virus. The latter is reflected as a critique of it in the content of the articles that were subsumed under the most comprehensive category “Prioritization of health.” It could be identified in different contexts for both the Ebola outbreaks and the COVID-19 pandemic; the main focus here was the prioritization of health, i.e., the increased use of protective measures against the virus and the focus on

pandemic control, which ultimately led to the neglect of other areas of life and health in African countries (sub-Saharan Africa).

One of the four impacts of prioritization relates to socioeconomic aspects or civil security. Inadequate income security, job loss, or general financial problems have been the results of COVID-19 prevention efforts in several sub-Saharan African countries (Juma et al. 2020; Erlach et al. 2021; Stoop et al. 2021).

In African countries (sub-Saharan-Africa), COVID-19 was found to lead to stronger protective measures than the more deadly Ebola. This was less due to high COVID-19 case numbers, as these were relatively low on the African continent at the start of the pandemic (this statement must be qualified, as it was retrospectively determined that the number of cases was higher than indicated due to insufficient testing capacities, cf. Mulenga et al. 2021), but rather to the high risk of infection, compared to the Ebola virus (Stoop et al. 2021). This was undoubtedly due to the internationally established standards of COVID-19 control – while there were no global strategies for the control of the Ebola epidemics. Due to the poverty in African countries (sub-Saharan-Africa), the protective measures implicitly led to further health problems, which were directly manifested by (psychological) stress, (existential) fears (Erlach et al. 2021), or insufficient food security (Juma et al. 2020; Richards 2020; Afolabi et al. 2021); shortages in food supply due to sick people in the food sector also led to hunger (Smyth 2020). Indirect effects on health were non-use of health services due to poverty or travel restrictions (Colombo et al. 2020) or use of health services in other regions due to lack of support services in one's own area, which drove spreading of the SARS-CoV-2 virus (Juma et al. 2020). The poverty and hunger consequences due to measures that were actually intended to protect people led to incomprehensibility and in compliance with the restrictions (Nachega et al. 2020). Thus, of all things, the measures taken to protect the population had significant negative ethical consequences – precisely because the framework conditions in African countries (sub-Saharan-Africa) were not comparable to those in the industrialized nations.

All of the aforementioned socioeconomic and normative impacts of protective measures were already known in Ebola outbreaks, but those measures were more restrictive in COVID-19 (e.g., increased travel restrictions, shutting down the economy) and resulted in more severe consequences for affected people. Because of these consequences, restrictions have been relaxed in some countries, for example, in Sierra Leone the travel restrictions between the 14 districts in order to maintain the nutrition of the population (Richards 2020); i.e., a trade-off was made here in terms of whether to accept “health at any cost” with these consequences ultimately harmful to people's health after all.

Explicitly, this reversal of the intended goal of promoting or maintaining health through prioritization becomes apparent when considering the impact on other diseases. During the COVID-19 pandemic, global attention was focused on this acute health threat as it emerged as a major public health burden with rising morbidity and mortality in the global community (Gebru et al. 2021) – pushing other life or health threats into the background. The result:

An increase in non-COVID related, indirect morbidity and mortality [...]. Most health resources and efforts shift to the response to the epidemic, at the expense of essential health care. Health spending is diverted to the epidemic control, at the expense of other health needs. (Colombo et al. 2020, 417-8)

Already during the Ebola outbreaks in West Africa and the DRC, it was noted that the outbreaks led to setbacks in the treatment and control of other or even endemic diseases in the population, or an increased burden on health systems – additionally and to an increased extent, this can be seen in the COVID-19 pandemic (Alene, Wangdi, and Clements 2020; Sasidharan and Dhillon 2021). Specific diseases mentioned in this context are malaria, HIV/AIDS, measles, and tuberculosis (Ajayi, Ajumobi, and Falade 2020; Alene, Wangdi, and Clements 2020; Sasidharan and Dhillon 2021). It is apparent that by focusing on one (acute) disease phenomenon, other diseases (their prevention, control, or treatment) can be sidelined, ultimately resulting in an increased disease burden and morbidity in a population – or globally in relation to COVID-19: “We cannot stop or stall our progress toward the eradication or suppression of such diseases only to face an even greater disease burden once the pandemic has passed” (Smyth 2020, 35).

Thus, for people who already suffer from diseases, major disease outbreaks such as Ebola or COVID-19 pose an additional risk – they belong to the vulnerable group of people who are particularly worthy of protection within a community. Vulnerable people include

the economically disadvantaged, racial and ethnic minorities, the uninsured, low-income children, the elderly, the homeless, those with human immunodeficiency virus (HIV), and those with other chronic health conditions, including severe mental illness. (The American Journal of Managed Care 2016, 348)

The control of acute disease outbreaks thus also protects vulnerable groups, but a strong focus on control can also have negative effects on them. This is particularly evident among women and girls in LIC and MIC, who have little or no access to education (due to prescribed traditional roles, power dynamics, social inequality, etc.), which prevents them from engaging in adequate preventive health care or self-care and makes them more vulnerable to health risks – this is particularly evident during major disease outbreaks such as Ebola and COVID-19 (Frimpong and Paintsil 2020). Women and girls are therefore also a vulnerable group during disease outbreaks (Saalim et al.

2021). At the same time, the number of cases of gender-based violence (GBV) or violence against women and girls (VAWG), i.e., violence or abuse specifically targeting women or girls, also increases during outbreaks: “a pandemic, conflict or a disaster will exacerbate pre-existing gendered structural inequalities and [...] leaves women and girls more vulnerable, fueling impunity for the perpetrators” (Javed and Chattu 2021, 33). Patriarchy is at the forefront of the causes of gender-based violence. Increased domestic violence due to mass quarantine measures or violence triggered by psychological stress during disease outbreaks exacerbate the situation of women and girls. Experience with Ebola outbreaks suggests that the protection of girls and women or vulnerable groups should be included in crisis management strategies (*ibid.*). The literature we reviewed also mentions people who have developed mental disorders triggered by health crisis situations; it should be noted that scientific research on mental illness has already increased in relation to outbreaks of Ebola and this has increased again, especially due to the global spread, with COVID-19 (Maalouf et al. 2021). Accordingly, not only are vulnerable groups particularly affected in acute public health crises, but the crisis situation can also give rise to (future) vulnerable groups that also need to be protected. The prioritization of health in relation to preventive measures is also criticized with regard to these effects, and the question of a trade-off is called for with demands for the consideration of vulnerable groups in crisis management.

A final aspect that we have included under our “Prioritization of health” category is the impact on cultural practices. The consideration of cultural practices in public health measures for infection control is a key lesson learned from the Ebola epidemic in West Africa. Already with Ebola, specifically in Sierra Leone, it was noted that international aid workers who were relied upon for control placed their containment and control measures (e.g., no home care, no local burial practices) above local and traditional practices without realizing the community importance of the practices or what negative consequences for communities resulted. For example, caregivers’ lack of knowledge that family involvement in care and burials are important social and cultural values and cannot simply be abandoned - which subsequently led to conflict (Richards 2020). In this context, knowledge of local or cultural needs can provide important information for disease control, e.g.,

The information was of epidemiological significance, since at death a woman’s body belongs to her patrilineage and will be buried in her own village by her brothers and sisters and not in the village of her husband, unless a lifelong series of obligations by the husband’s family has been completed. (*ibid.*, 499)

Aid workers then appropriated this social and cultural knowledge and adapted relief efforts accordingly by supporting local and community aid workers - allowing for more precise and rapid containment of Ebola without directly influencing cultural practices (*ibid.*).

But despite culturally sensitive adaptation strategies to contain outbreaks such as Ebola, it is apparent that these strategies have not always been used and often prevention and protection measures have directly influenced cultural practices. One example is the challenge of mass quarantine measures – especially when regular physical contact is part of social culture – which were used more restrictively during COVID-19 than during Ebola (Afolabi et al. 2021). Examples of the increased influence on cultural practices by COVID-19 have been seen, for example, in funerals in South Africa. Because bodies had to be buried expeditiously and in more distant or safer locations outside communities due to infection control, bereaved families could not mourn the deceased because travel between provinces was not permitted for mourning events (Canham 2021). Complaints were made about the prioritization of health, which was given a higher priority than cultural practices: “In its place, is an incredible loneliness where custom is replaced by regulation” (ibid., 302). Nevertheless, solutions to the burial problem were offered, such as “live-stream burials” in South Africa via the Internet (e.g., YouTube) to allow relatives to mourn their deceased at a distance; however, this solution was met with criticism in some areas because this practice was at odds with the culture of respect and seriousness that death requires (ibid.).

Finally, looking at all four forms of health prioritization impacts related to Ebola and COVID-19 outbreaks, we see that this is primarily a problem for LICs and MICs; in these countries, the population is most directly affected by the impacts because they do not have sufficient resources to mitigate them:

The positive effects of these measures, however, are not necessarily transferable to low income countries that do not have the financial capacity to counterbalance the negative consequences of long lockdown periods, nor the capacity to enforce strict containment measures country wide. (Colombo et al. 2020, 418)

It turns out that the initial assumption, often cited publicly, that the pandemic would affect all people worldwide equally was a fallacy – the pandemic does affect everyone, but not equally: countries where (opportunity) inequalities already existed before the pandemic were further burdened by the pandemic (Bundervoet and Davalos 2021).

It is particularly problematic that the intended claim of the protective measures, namely, to protect health as a conditional good under all circumstances, in many cases ultimately and in the future led to the opposite, namely to the restriction of people’s health. It should be noted that for both Ebola and COVID-19, measures to protect health were treated conditionally – but this ultimately led to increased amounts of protests and negative consequences. One solution to this ethical dilemma would be to weigh the right balance of restrictions to maintain health and quality of life in equal measure.

#### 4.4 Is there Fair Access?

In 2017, the World Health Organization (WHO) and The World Bank published a Global Monitoring Report on “Tracking Universal Health Coverage” (WHO and The World Bank 2017). It states that “at least half the world’s population still lacks access to essential health services” (ibid., v). Closely related to this finding are the so-called Social Determinants of Health (SDH),<sup>3</sup> which can have a major impact on the health outcome of individuals worldwide in both LIC and HIC – ultimately, wherever “social determinants have a direct link to the economic and social opportunities afforded to one population over another.”<sup>4</sup> Thus, these determinants include non-medical aspects, such as economic stability, education, food security, or access to health services, which can play a crucial role in keeping people healthy.

In the context of major disease outbreaks such as Ebola and COVID-19, the aspect of “Equal access to resources” plays a significant ethical role when it comes to the preservation of public health because access determines the health of people in a direct or indirect way. In the literature we examined, we were able to distinguish three different types of resources for which equitable access was not ensured in the context of disease outbreaks and which were criticized: access to protective materials, to technology, and to research. Again, it is striking that these inequities are predominantly found in relation to countries from sub-Saharan Africa. Many of these countries have no or limited access to protective materials – both at the individual and public levels. At the public level, insufficient testing capacity or appropriately available laboratories were cited to test people for COVID-19, which worked against infection prophylaxis (Colombo et al. 2020; Juma et al. 2020; Nachega et al. 2020; Afolabi et al. 2021). For example, one national laboratory in the capital, Kinshasa, was responsible for all COVID-19 RT-PCR testing in DRC, which also resulted in severely delayed test results (Nachega et al. 2020); the same problem of inadequate testing conditions was identified for Ebola. But it was also reflected that while Ebola in Sierra Leone has developed a solid concept of contract-tracing, quarantine, and testing, COVID-19 ultimately brought other challenges, e.g., diagnostics based on symptomatology, delivery of equipment when the world is in lockdown, or the government’s lack of payment for technology and training of personnel (“post-Ebola bankruptcy”; Richards 2020, 497). In contrast, at the individual level, inadequate access to personal protective equipment (such as face masks, gloves) or measures (such as hand hygiene, use of disinfectants) is evident for the general population as well as for health care workers (Juma et al. 2020; Nachega et al. 2020; Afolabi et al.

<sup>3</sup> World Health Organization. Social determinants of health (SDH). [https://www.who.int/health-topics/social-determinants-of-health#tab=tab\\_1](https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1) (Accessed August 10, 2021).

<sup>4</sup> Van Houten, Frans. 2020. Here’s how to improve access to healthcare around the world. World economic forum. <https://www.weforum.org/agenda/2020/01/tackling-healthcare-access-constraints/> (Accessed August 10, 2021).

2021; Erlach et al. 2021). Thus, not every household has the means to “afford” infection prevention even when sufficient education on prevention measures exists – these health prevention requirements are particularly tragic or difficult to implement in regions where a large proportion of the population lives in precarious conditions where access to running water is scarce and no sanitation or hygiene infrastructure is available (Afolabi et al. 2021).

Another aspect concerns the use of technology or technical devices for outbreak control in African countries where digital and other structural inequalities prevail. On the one hand, criticism was levelled at the lack of access to technology, and on the other hand, the use of available but not context-specific technology from outside. To enable bereaved families to attend the funeral ceremony of deceased relatives, digital solutions were used in South Africa during COVID-19, for example, to comply with distance measures in terms of infection control. However, the problem was that not all people had equal access to this technical option due to their financial situation – accordingly, they were excluded from funeral ceremonies of their relatives (Canham 2021).

The criticism regarding context-specific technology refers to the primarily adopted “technic-centric” perspective versus a “socio-technical” perspective, i.e., “neglect of the interplay between technology and its societal context of deployment by focusing on the techno-economic benefits of a given technology” (Arakpogun et al. 2020). The technology often developed in HIC is initially context-specific for these countries; it relates to the environment and needs experienced there. If technology is intended for other cultural spaces or countries, developers are faced with the challenge of developing the technology specifically for the targeted local context – if this is not successful, this is referred to as the “design-reality gap” (ibid.). A general overlay of technology – based on the mistaken idea that the same conditions prevail everywhere – on countries that have different basic conditions and different local needs may not lead to the desired goals or may even have negative consequences (ibid.). For example, it was noted that during the 2013 Ebola outbreak in Sierra Leone, contact tracing of infected people was done by local health teams who had the local knowledge to locate people and provide them with quarantine information; during COVID-19, a smartphone application was then deployed to do just the same, but ultimately proved ineffective, was abandoned, and reverted (with great success) to local health teams. Realizing the ineffectiveness of this technique in the specific setting took time and risked infection:

The larger lesson, then, is that the functionality of a contact tracing system depends not on whether it deploys “world-beating” technology but on how capable it is at recognizing and responding to the realities of the complex social webs within which infected persons live. (Richards 2020, 498)

Finally, equitable access to research is an issue that was relevant to affected countries in the context of the Ebola and COVID-19 outbreaks. In this regard, our database, with reference to countries in sub-Saharan Africa and COVID-19, cites the issue that there was insufficient access to epidemiological research data of their own countries to determine safer forecasts or public health interventions: “epidemiological studies are needed to better understand the transmission patterns, assess the health and overall impacts of the epidemic, and evaluate the effects of containment measures” (Colombo et al. 2020, 415). In a similar way, it was already criticized in the case of Ebola that there was a failure in the (especially rapid) dissemination of research data, which ultimately led to delayed assessments and actions in infection control (Afolabi et al. 2021). Accordingly, it could already be learned from Ebola that a fast and transparent handling of research data is also desirable in the fight against COVID-19 – at the same time, however, it was also stated that such open science concepts should always be used in an ethically reflected manner (e.g., with regard to due diligence, data protection, spillover effects of premature results, etc.; Khanali, Malekpour, and Kolahi 2021).

It was also critically reflected that research and production mostly took place outside, mainly in HIC, without the involvement of the affected countries – which ultimately led to a lack of acceptance of the research results and products, such as vaccines, by the people:

The skepticism towards COVID-19 vaccines appears to be associated with the fact that vaccine manufacturers and scientists have been predominately from Europe and North America, raising suspicions of neocolonialism through medical research. (Kasozi et al. 2021, 253)

Another aspect in this context is the handling of intellectual properties. It is argued that access to research results and products is ultimately made even more difficult by patenting (intellectual property rights vs. public health interests), i.e., even if countries have access to research results in the first instance, access to products such as drugs or vaccine doses can be made more difficult by patenting in the second instance (Motari et al. 2021).

Interestingly, access equity related to vaccines was not an issue in the articles in our database. This could possibly be related to the fact that at the time the articles were published in our database (2020-2021), the topic of vaccines was relatively new (first COVID-19 vaccine issued in December 2020 by the US Food and Drug Administration) and issues of access or even distribution equity did not yet arise or would not arise with further vaccine approvals and production.

In conclusion, a direct comparison between Ebola and COVID-19 also shows in the category “Equal access to resources” that these disease outbreaks present a problem in terms of equitable access to resources – but often in a more pronounced way for COVID-19. It turns out that the disparities we see in the COVID-19 response can be attributed to the fact that Ebola

outbreaks predominantly affect LICs and LMCs, so they are all similarly disadvantaged, whereas with COVID-19, people are affected on a global scale. Inequity in access shows up in our database in an amplified way in countries where inequities already exist and disease outbreaks or crises contribute to exacerbating these inequities, and this unequal access has consequences for people's health.

#### 4.5 Communication: A Matter of Caring and Empowerment?

Communication in crisis situations is a crucial tool when it comes to protecting people. Particularly during major disease outbreaks where there is a threat to life or health due to the specific event, adequate information or communication with the public contributes to public health, e.g., to warn, educate, and empower people. Accordingly, unethical (communication) behavior can undermine the imperative of care that government and public officials have toward fellow human beings, e.g., when proper information about the current state of knowledge of the situation is not conveyed or even when false news is used for one's own staging or sensationalism. Professions, such as the medical profession, politicians, or media representatives, have certain codes of ethics, which also, or especially in crisis situations, allow ethical and professional action to be expected: "Such codes aim to ensure that individuals belonging to certain professions act in a way that is ethically and professionally consistent with that which might reasonably be expected" (Quinn 2019, 19). Nonetheless, the Ebola and COVID-19 disease outbreaks demonstrate that the imperative to care for the public has not been met in various ways. The category "Adequate Information" subsumed content from articles in our database that criticized unclear, premature, or inaccurate information during these disease outbreaks (Brown and Mari Sáez 2020; Hauer and Sood 2020; Afolabi et al. 2021; Erlach et al. 2021; Kasozi et al. 2021). Among these, it was argued that the hasty promotion of herbal agents in Uganda as a cure for COVID-19 has led to uncertainty and a loss of public acceptance toward the use of vaccines; similar experiences, which subsequently led to vaccine skepticism, have already been noted with Ebola (Kasozi et al. 2021). Already with Ebola, there have been various myths, misconceptions, and misunderstandings that have arisen around the virus and the disease, limiting an effective public health response and hindering research; COVID-19 also presented such public communication challenges (Afolabi et al. 2021); for example, rumors arose "that COVID-19 does not pose risks to those who are not white or rich" (Erlach et al. 2021, 17), so that everyone else would be protected from it, or rumors that "people with dark complexion do not get infected with SARS-CoV-2; hot tea, lime drinks and pepper soup can cure COVID-19; and medical face masks imported from China were infected with SARS-CoV-2" (Afolabi et al. 2021, 27). In addition, the articles state that it is

the task of government representatives or even organizations such as the WHO to protect public health and that they therefore have a decisive role in communication. For example, in sub-Saharan Africa, there is criticism that public crisis communication there makes COVID-19 less of a threat and more of a political purpose for the disease, i.e., there is a distrust of the government with regard to its communicated contents, especially because the required measures (wearing masks, keeping distance) are not observed by public representatives, such as politicians, police, or military (Erlach et al. 2021). It is expressed that public persons and also institutions do not only have the task to give clear information, but also to deal adequately with uncertainties, especially with outbreaks of so far unknown diseases, e.g., in case of missing scientific evidence or still outstanding information: “Their challenge is to address uncertainty in a context where scientific evidence is absent and the authority of scientists, in general, is questioned” (Jong 2020, 966).

The WHO has also been criticized in this regard – it was noted that the organization used negative rhetoric in communicating the Ebola outbreak in West Africa compared to the COVID-19 outbreak in China; the criticism here is that this created a global influence on the perception of the two outbreaks and the resulting consequences or support for the affected countries (Ho, Li, and Whitworth 2021). Such unbalanced communication can lead to different results, e.g., fears can be stirred up, negative behavior in the public can be provoked, or stigma can be caused (Brown and Mari Sáez 2020; Shrum et al. 2020). Even the declaration of a disease outbreak as an epidemic or pandemic can cause certain fears. Accordingly, reflected crisis communication is already necessary at this meta-level (Shrum et al. 2020). It can be seen that, in particular, culturally sensitive crisis communication often already eliminates many threats – for example, it was already found in the case of Ebola that a “bottom-up” strategy in controlling the outbreaks was more promising – as people resisted or subverted ordered protective measures in “top-down” strategies, such as mass quarantine, in order to survive; similar experiences can be noted with regard to strategies against COVID-19 (Johnson and Goronga 2020; Nachege et al. 2020).

So-called fake news is of particular importance in crisis communication, especially in the case of outbreaks of disease. Although fake news has been around since journalism began, the term has increasingly become the focus of public debate in recent years and has grown in scope and significance, especially due to the internet:

Manipulation, disinformation, falseness, rumors, conspiracy theories – actions and behaviors which are frequently associated with the term – have existed as long as humans have communicated. The novelty of the term in

this context relates to how false or misleading information is produced, distributed and consumed through digital communication technology.<sup>5</sup>

For example, the Cambridge Dictionary defines the term fake news as “false stories that appear to be news, spread on the internet or using other media, usually created to influence political views or as a joke.”<sup>6</sup> Fake news poses a particular challenge in public crisis communication. Due to the high reach of modern communication technologies such as social media, information reaches the public unfiltered and thus also influences the management of a crisis (Quinn 2019; Hauer and Sood 2020). Especially in crisis situations, fake news poses a high-risk potential since it is not (always) clear to the public or media consumers whether the information is harmful or useful. The dissemination of such misinformation is particularly problematic when it is carried out by public figures who represent authorities in society or are highly trusted. Particularly during the COVID-19 pandemic, there was increased criticism of fake news in crisis communication that contradicted the requirement of truthfulness (Druml 2020; Jong 2020; Smyth 2020). In the category “Adequate information,” the focus is on countries worldwide, i.e., LICs/LMCs and HICs/UMCs are addressed or included in almost equal proportions; the topic of fake news was specifically addressed only with reference to HICs (specifically the USA).

#### 4.6 Do Health Care Workers Have a Choice?

“Healthcare industry is one of the most hazardous environments to work in. Employees in this industry are constantly exposed to a complex variety of health and safety hazards in the course of their work” (Joseph and Joseph 2016, 71). Health care workers in frontline settings, such as large disease outbreaks, are at even greater risk of harm, both physically and psychologically – this has already been seen in the Ebola outbreaks (Doshi et al. 2020) as well as in the COVID-19 pandemic (Nguyen et al. 2020). In our articles, we were able to identify contents that address the very risks that healthcare workers face in disease outbreaks, not of their own accord, but for reasons of solidarity or professional ethics. In addition to the increased risk of infection, healthcare workers are also exposed to psychological and emotional stress (Mohindra et al. 2021; Myles et al. 2021; Sasidharan and Dhillon 2021). These include, for example, fears of infecting family members or close relatives (Myles et al. 2021), security risks during armed conflicts (e.g., during COVID-19 in DRC; Sasidharan and Dhillon 2021), or stigmatization experiences by society (shunning, abuse, violence; Mohindra et al. 2021) – these aspects are

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<sup>5</sup> Kalsnes, Bente. 2018. Fake News. Oxford Research Encyclopedia of Communication. <https://doi.org/10.1093/acrefore/9780190228613.013.809>.

<sup>6</sup> Cambridge Dictionary. Fake news. <https://dictionary.cambridge.org/de/worterbuch/englisch/fake-news> (Accessed August 10, 2021).

empirical values that were already identified during Ebola and are now again an issue during COVID-19. Such reactions towards healthcare workers may be explainable (not excusable) from a counter perspective: (potential) patients avoid using healthcare services for fear of being infected by healthcare workers (Colombo et al. 2020). Based on the experience with Ebola, support measures could be established for the increased stress of healthcare workers to support them before, during, and after a mission (Myles et al. 2021), also, e.g., by establishing anti-stigma measures (Mohindra et al. 2021).

There is a question that arises when considering these increased burdens that health care workers expose themselves to on behalf of others: is it a duty to expose oneself to increased risks as a health care worker in order to help or protect others? A “Guidance in a pandemic” published specifically for the COVID-19 outbreak based on the AMA Code of Medical Ethics under Opinion 8.3 responds to this by stating that “physicians have an obligation to provide urgent medical care during disasters. This obligation holds even in the face of greater than usual risks to physicians’ own safety, health, or life.”<sup>7</sup> However, this professional ethical obligation is primarily one designated within a code and not a law.

This leads to another question: is a healthcare worker allowed to evade such (professional) duties for his own protection? One article in our database addresses this very ethical dilemma with reference to a specifically Jewish perspective:

The classic Jewish sources have dealt with this question as well. There is an obligation “to not stand by idly when you [*sic*] friends life is in danger”; however, the question arises as to whether there are limits to this obligation? Is one required to risk one’s own life to save another person? (Solnica, Barski, and Jotkowitz 2020, 441)

The authors of the article list four different responsibilities that a health care worker, specifically a physician, has towards patients: ethical responsibility (it is Jewish tradition to visit and treat the sick, this ultimately applies to patients with an infectious disease), professional responsibility (it is a professional duty to care for the sick; modern notion of ethical responsibility shared by all physicians as members of the profession), societal obligation (society’s expectation that health care workers care for the sick), and permission to care for the sick (health care workers not only have an obligation to care for the sick in the practice of their profession, but they also have permission to do so). Finally, the authors conclude that healthcare workers have different obligations to their patients and should take risks to do so, but at the same time there should be an obligation (e.g., on the part of hospitals) to provide the best possible protection to health care workers (Solnica, Barski, and Jotkowitz

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<sup>7</sup> American Medical Association. 2020. AMA code of Medical Ethics: Guidance in a pandemic. <https://www.ama-assn.org/delivering-care/ethics/ama-code-medical-ethics-guidance-pandemic> (Accessed August 10, 2021).

2020). Thus, in another article in the database, it was found that this granted protection for health care workers is ultimately an important indicator of willingness to cooperate in crisis situations; here, it is shown that lack of trust, lack of guarantee of safety, and the type of crisis situation at hand (e.g., lower willingness to help in Ebola than in COVID-19 outbreaks and highest willingness to help in natural disasters) can all negatively impact health care workers' willingness to assist (Sultan et al. 2020).

It turns out that health care workers are not only exposed to a high health burden but additionally to a duty of solidarity, which maneuvers them into an ethical conflict situation, should they decide in favor of their own health. One possible way out is the increased protection and support of health care workers – so that the “way forward is no longer ‘Physician heal thyself’ but ‘Physician protect thyself’” (Joseph and Joseph 2016, 72) to perform their duties.

#### 4.7 Do Disease Outbreaks Trigger Stigma and Discrimination?

Based on Erving Goffman's account of “stigma” ([1963] 1990), Link and Phelan (2006) describe a five-stage process (consisting of labeling, stereotyping, separating, loss of status, and discrimination) leading to stigma and negative health implications (Link and Phelan 2006). These health implications refer primarily to the affected or stigmatized person, since a “second illness” is experienced as a result of the stigma (Finzen 2000) – for example, through discriminatory, negative behavior towards the person, such as violence or shunning, which can also extend to surrounding groups of people in the social environment of the person affected (so-called courtesy or associative stigma; Goffman [1963] 1990; Mehta and Farina 1988).

Specifically, for disease-related stigma and discrimination during disease outbreaks against humans, the health consequences for affected individuals can also become a public health risk because disease containment is compromised, or the risk of infection is not mitigated (Fischer et al. 2019). Stigma experience and discrimination could be identified in the articles in our database for both Ebola and COVID-19. Similarities can be observed with regard to the forms of stigma and discrimination: The focus is particularly on marginalized groups, i.e., “those who, to varying degrees, exist politically, socially, or economically ‘outside’ of dominant norms and institutions” (Cohen 1999, 37). Thus, marginalized groups have been stigmatized and discriminated against because of their appearance, language, origin, or religion in relation to the virus or disease (equally so for Ebola and COVID-19) in various countries worldwide (Dionne and Turkmen 2020; Lee, Huang, and Schwarz 2020; Afolabi et al. 2021; Canham 2021). The consequences are lower utilization of health services by those affected, even in the presence of certain symptoms, or denial of symptoms for fear of stigma (Dionne and Turkmen 2020; Afolabi et al. 2021). In general, the impact of disease outbreaks is found

to disproportionately affect marginalized groups more than the rest of society (Dionne and Turkmen 2020; Smyth 2020; Richards 2020; Canham 2021) – an explanation of why this focus exists is also addressed in the articles: it has been argued that marginalized groups also experience forms of hostility in society outside of disease outbreaks, and that they are used as “scapegoats” in crisis situations (Canham 2021). Another explanatory approach to stigma and discrimination with specific reference to xenophobia in disease outbreaks traces this back to fears of the (individual’s) disease: people’s tendency to avoid disease risks can lead to an overgeneralized avoidance of foreign, unfamiliar entities, even if they do not represent actual disease vectors – creating xenophobia (Lee, Huang, and Schwarz 2020). Ultimately, the assumption that “infectious disease triggers stigma, and stigma worsens disease” (Brewis, Wutich, and Mahdavi 2020) can be supported with regard to the contents of our literature.

#### 4.8 A Dilemma of Human Research?

The basic dilemma of medical research involving human subjects is reflected in the interest of knowledge (general benefit) on the one hand and the interest of subjects (individual protection) on the other. Accordingly, bodies (e.g., ethics committees) and ethical principles (e.g., Declaration of Helsinki; WMA 2013) have been established in clinical research, which represent shared norms and values of the scientific community and society; here, the ethical evaluation of study designs or the treatment of subjects plays a role. Under this premise, the category “Research ethics” includes content from articles that ethically reflect on the development of vaccines in the context of disease outbreaks. One aspect that was relevant during both the Ebola outbreak in West Africa and the COVID-19 outbreak was that at the time of the outbreaks, there were no researched drugs or vaccines available to combat the virus or to treat people. In both virus scenarios, pressure to act arose, on the one hand, to develop and produce appropriate agents as quickly as possible to protect human lives and, on the other hand, to establish research processes involving care and time to also protect people – both aspects collided during the outbreaks.

For COVID-19, this situation was countered with an accelerated vaccine development strategy (Uttarilli et al. 2021); this was also made possible in particular by the global spread of the virus and thus the participation of many countries. A similar approach was taken to the Ebola outbreak in West Africa, but, in addition, the use of experimental agents was permitted under defined ethical conditions (WHO 2014). The articles in our database address both abbreviated vaccine and drug research and the use of unapproved agents, e.g., in compassionate use concepts (Druml 2020; Afolabi et al. 2021). The main criticism here is the potential harm that can occur for humans if active

substances are not adequately studied in abbreviated clinical trials (Afolabi et al. 2021), but also the resulting possible breach of trust in science and research, which can result in “vaccine hesitancy” (Smyth 2020). The acute research pressure during the Ebola outbreak in West Africa provided lessons regarding ethical aspects of study design, including transparency for all participants in the study process and adherence to local ethical standards (Wolf et al. 2020). The question of the use of placebos also arose anew in light of the Ebola and also COVID-19 outbreaks: unlike COVID-19, during the Ebola outbreak in West Africa, the use of placebos in clinical trials was deemed unethical by several countries due to the high mortality rate and difficulty in providing adequate care to ill patients (Wolf et al. 2020).

An article in our database addresses another aspect relevant to research ethics, which also concerns the protection of humans involved in clinical trials and explores the question of whether it is ethically justifiable to test another vaccine in a clinical trial in humans when an effective vaccine is already available (Monrad 2020). In this regard, the authors in this article present various arguments that contradict such an additional burden on humans: if an effective agent is available, it should not be withheld from individuals if their lives may depend on it. To a particular extent, this applies to individuals who have been involved in research in resource-poor settings, where outbreaks are most common – they are hardest hit by withholding effective agents. Furthermore, it is argued that the hope for vaccines neglects other prevention and protection measures to counter an outbreak. However, it is countered that it may be ethically justified to research additional vaccines alongside an existing one if that candidate vaccine is expected to have advantages over the existing one (ibid.).

#### 4.9 Appropriate Balance of Freedom and Protection?

Particularly during the COVID-19 pandemic, the term “social distancing” has become widely used to imply a protective or preventive measure, namely keeping people apart to stop the spread of the virus – yet the term is completely misleading, as it is less about social distance and more about physical distance to prevent infection; accordingly, a change of term to “physical distancing” is now being solicited in order to communicate adequately in future disease outbreaks (Sørensen et al. 2021). In the case of both Ebola and COVID-19, physical distancing measures or, in other words, liberty-restricting measures play a role in the protection against infection. The ethical implications here concern the just balancing of solidarity-based protection vis-à-vis society and the freedom of the individual.

The articles that we have subsumed under the category “measures restricting freedom” contain various criticisms of measures that are not operated in a balanced manner. For example, it is stated that people are burdened to

different extents and thus unfairly by liberty-restricting measures as infection control; in this context, reference is made, on the one hand, to unequal effects of such measures in countries with fewer resources when compared with countries with a better infrastructure (Leach et al. 2021) and, on the other hand, to particularly vulnerable persons in a society, such as dying patients (Voo, Senguttuvan, and Tam 2020).

To enable patient and family contact during isolation measures, different “presence options” (physical, virtual, vicarious) were ethically reflected – with the result that the options have to be weighed individually (also with regard to varying guidelines). In the case of physical presence, for example, it is apparent that there are inequities in the way it is handled; in some countries there are absolute bans on visiting patients, while in others exceptional cases are permitted. Visiting bans, especially with regard to family members, can also have negative spillover effects, so that potentially infected persons do not take advantage of health measures because they expect to be isolated from their family (Voo, Senguttuvan, and Tam 2020). But virtual presence via electronic communication tools also reveals ethical challenges, such as resource or connection limitations or protecting the privacy of other isolated patients. The deputy presence, in which health care workers take on the role of relatives to a certain extent, represents an additional emotional burden for them in addition to the general one caused by their work. The trade-offs regarding access to patients in isolation measures are particularly serious when the patients are children or dying (Voo, Senguttuvan, and Tam 2020). It becomes apparent that new forms of closeness and distance have to be negotiated through isolation measures, especially towards persons (groups) with whom there was normally unrestricted close social and physical contact – “to maintain the oxymoronic intimacy implied in the term ‘social distance’” (Brown and Mari Sáez 2020, 24).

A central point of criticism in the articles in our database is the restriction of fundamental rights concerning freedom. For example, the position is clearly stated that any restriction of individual liberties in favor of social security is a restriction of human rights. Such an encroachment can only be justified “if it is based on the rule of law and observes the principle of proportionality, if only the less severe means are to be used” (Druml 2020, 401). A further ethical dimension is cited when considering the aspect of surveillance in isolation measures, e.g., ensuring that infected persons also isolate themselves. Among other things, smartphone apps have been used to monitor COVID-19-infected persons in quarantine at home – this surveillance represents an encroachment on the fundamental right to privacy (Druml 2020).

#### 4.10 Where is Health Equity Lacking?

“Life expectancy and healthy life expectancy have increased, but unequally. There remain persistent and widening gaps between those with the best and worst health and well-being.”<sup>8</sup> This WHO statement on health inequity refers to inequalities that can be identified at the global level both within and between countries and are closely related to the SDHs already mentioned. The health inequalities are particularly evident in the comparison between poorer and richer populations, e.g., life expectancy for people in LIC is 18 years lower than that in HIC.<sup>9</sup> Disease outbreaks exacerbate such injustices, prompting calls for global justice not only in the current COVID-19 pandemic but also already in past Ebola outbreaks. In the articles in our database, content on the topic of global health justice has been inductively extracted. The criticism is that COVID-19 in particular is showing a trend toward nationalistic attitudes and a retreat from international solidarity, for example with regard to the availability of medical products: “they act according to the motto ‘everybody for himself’” (Druml 2020, 401). Injustices are made more apparent by the global impact of COVID-19. For example, while Sierra Leone was still receiving humanitarian support from the United Kingdom during the Ebola outbreak (particularly due to historical dependencies), this support ceased during COVID-19, and this shows: “In a pandemic, every country has the disease, and international help and mutuality are at a premium” (Richards 2020, 497). With regard to the Ebola outbreaks, experience has already been gained on how to address disease outbreaks in solidarity in a “whole-of-world” approach through cross-border resource sharing, cooperation, and synchronized pan-global containment efforts (Ebrahim et al. 2020). And yet, while lessons are being learned from past outbreaks and taken into account for future crisis management, no specific moral lessons are being learned – especially with regard to solidarity and justice: “unless we appreciate that we have a defect in our collective moral attitude toward remediating the conditions that precipitate the emergence of outbreaks, we will never truly learn” (Smith and Upshur 2020, 564). The problem of global health equity can therefore be described as a lack of motivation to address inequities rather than a lack of existing opportunities to address them.

#### 4.11 Do Disease Outbreaks Burden the Environment?

As mentioned above, outbreaks not only affect the health of the population but also have an impact on social processes and structures. An ethical level of consideration that has been missing so far and could be obtained

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<sup>8</sup> World Health Organization. Social determinants of health (SDH). [https://www.who.int/health-topics/social-determinants-of-health#tab=tab\\_1](https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1) (Accessed August 10, 2021).

<sup>9</sup> World Health Organization. Social determinants of health (SDH). [https://www.who.int/health-topics/social-determinants-of-health#tab=tab\\_1](https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1) (Accessed August 10, 2021).

inductively as a category in our dataset is an environmental one – specifically, the interaction between humanity and nature that influences our health. For example, one article addressed the fact that an ecological perspective on our (surrounding) world has been missing until now, which is why there is an increase in health-threatening disease outbreaks (ten Have 2020). Man-made outbreaks, such as Ebola and COVID-19, are not spontaneous natural events; they represent the result of a disconnect between humans and nature in which nature is viewed as a resource and serves as such. Accordingly, only a changed view of the human being, embedded in the (surrounding) world, offers the prerequisite for protecting health in the long term: “The ecological perspective therefore stresses the need for solidarity. This is not just an ethical requirement, but a medical necessity” (ibid., 528).

In addition to this meta-level consideration, an additional criticism is made in an article addressing the amplification of climate change by disease outbreaks. Compared to the Ebola outbreaks, COVID-19, due to its global spread, has seen an increased global response to the virus and disease with resources (albeit to varying degrees due to availability). Thus, there is an environmental burden from increased use of disposable (plastic) materials (e.g., gloves, gowns, face protection) and chemical (antimicrobial) agents (e.g., infectious agents) in clinical, research, and private settings – further compounding the existing environmental burden (Smyth 2020). As was also noted previously, it appears that the fight against climate change is also stalled during disease outbreaks rather than being the first priority. Even though initially mass quarantine measures made a positive impact on carbon dioxide pollution due to dramatically reduced mobility, it is apparent that prioritizing pandemic response ultimately created losses in environmental and climate protection (Smyth 2020), ultimately affecting global health and the health of the world.

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## 5. Conclusion

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Referring to the “Principles of Biomedical Ethics” (Beauchamp and Childress 2009), Druml (2020, 402) concludes on disease outbreaks that “the general ethical principles are always the same, namely justice and solidarity, beneficence, non-maleficence and autonomy.” This conclusion can be drawn fundamentally as well for our examination of ethical challenges in Ebola and COVID-19 (see table 2), but our study also shows that these challenges need to be considered in a differentiated way.

Thus, the nine different ethical categories identified in our study apply equally to the Ebola outbreaks and the COVID-19 pandemic, even though they are fundamentally different diseases. At the same time, the analysis shows that ethical challenges differ with respect to the degree or type of affectedness; these differences are particularly evident with respect to the countries

in which the outbreaks occurred, e.g., Ebola outbreaks were exclusively recorded in LICs that had fragile health systems. The outbreaks had a far-reaching impact on people's health and livelihoods there. Ebola areas that were then additionally affected by the COVID-19 pandemic were particularly hard hit in this regard. In contrast, people around the world were affected by the COVID-19 pandemic, but not to the same extent – here, people in LICs suffered greater health and livelihood impacts than those in HICs.

The different ways of dealing with the Ebola outbreaks (especially protective measures) and the COVID-19 pandemic, which led to far-reaching, ethically charged economic, cultural, and social consequences, are particularly striking – here, it became clear that universal measures in outbreak regulation create ethical problems and that a locally adapted strategy is more promising.

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## Appendix | Sample of n = 39 articles (Ebola and COVID-19)

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