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Thesis Master of Science

How do Norwegian versus German health authorities use rhetoric and build upon public trust in their communication during the Covid-19 crisis?

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Abstract

This case study investigates two television programs, 'Markus Lanz' (ZDF) in Germany and 'Debatten' (NRK) in Norway, focusing on the rhetorical strategies employed by health authorities during the critical period of November to December 2021, marked by the emergence of the Omicron variant. The analysis employs a qualitative approach, conducting rhetorical examinations of health authorities in six episodes, three from each show. Health authorities featured include experts from the Norwegian Institute of Public Health, the Norwegian Directorate of Health, the German Robert-Koch Institute, and the Standing Committee on Vaccination.

Further, the study integrates a quantitative component through a sentiment analysis using ChatGPT for Twitter/X comments related to the shows. The findings highlight that health authorities prioritize informative over persuasive strategies, emphasizing transparency and credibility. They establish expert ethos through *expert pedagogy* and *expert techne*, explaining complex concepts and referencing relevant studies. The authorities consistently explain the scientific basis of their decisions, engaging in transparent communication, and crisis management.

Twitter/X reactions are more negative towards German health authorities, aligning with communication and resource challenges. Opponents receive more positive reactions in Norway, influenced by their rhetoric and asking of critical questions. Practical implications suggest that audiences value clarity, rationality, objectivity, effective communication, and expertise.

Keywords: *organizational crisis preparedness, Covid-19, public sector communication, health authorities, expert ethos, sentiment analysis*

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Furthermore, I would like to express my gratitude towards my co-supervisor Thorvald Hærem for allowing me the freedom to work on a topic that connects the dots between organizational psychology and communication science.

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1 Introduction

During November and December 2021 Germany and Norway reported record high infection rates. The new omicron variant, that was first discovered in South Africa reached Europe. This variant of Covid-19 is getting more easily transmitted, causing more people to become sick and as the result the Covid-19 vaccines appear to be less effective (NHI, 2021).

On 1st of November 2021 Jens Spahn, back then acting Minister of Health in Germany, is calling on the federal states to open up the vaccination centers for booster vaccinations. Shortly after on 4th of November, the RKI reported 33,949 new infections within one day - a new record. More and more federal states are extending the 2G rule (2G meaning vaccinated or recovered from Covid-19) to several areas of public life. This is their response to the sharp rise in the number of infections. On 27th of November 2021 Germany reports the first infections with the omicron variant. In beginning of December, the federal government and the federal states agree on restrictions for unvaccinated people. These include contact restrictions, access to retail, cinemas, and restaurants. It was also decided to make vaccination compulsory for all employees in hospitals and care facilities. On 9th of December the STIKO recommends the Covid-19 vaccine for children from five years on and older, if they have pre-existing conditions or are in contact to high-risk groups. Other children can get vaccinated at the discretion of their parents. (MDR, 2022).

In Norway, on 4th of November the government has decided that healthcare personnel will be prioritized when offered a booster dose of the Covid-19 vaccine. On 12th of November 2021 the government decides that everyone above 18 years old would get an offer for the third dose. On 26th of November new measures are introduced to limit the spread of the new omicron variant. Starting from December 3, everyone arriving in Norway must undergo testing, regardless of their vaccination status. On 13th of December new national infection control measures are implemented to avoid overwhelming healthcare services and to protect critical societal functions. Stricter rules are being introduced for events and nightlife, in the cultural sector, and in leisure activities. Nationwide restrictions on serving alcohol are being implemented (Government.no, n.d.).

In the dynamic landscape of public health communication, the Covid-19 pandemic has highlighted the pivotal role of trust and credibility as central constructs (Kjeldsen et al., 2021). As the health authorities navigate the unprecedented challenges posed by the pandemic, the effectiveness of communication strategies becomes a key to success. Health communication is an important part in health care. Ineffective health communication places risks and costs for societies, their economies, and people. Direct and indirect consequences include a poor general health status, less use of preventive service and increased hospitalization rates (Vahabi, 2007). Today, societies move from one crisis to another. Crisis has become a new normal and Covid-19 is expected to not remain the last pandemic (Johansson, Ihlen, Lindholm & Blach-Ørsten, 2023).

This mixed-methods study investigates the fundamental questions of how rhetoric and trust are crucial in the context of public health communication. Therefore, Norwegian and German health authorities´ rhetoric in talks shows and the audience´s Twitter/X reactions will be investigated in the reference period between November and December 2021. It will be analyzed in which ways rhetoric and trust influence information dissemination, public perception, and overall crisis management. By examining the interplay between trust, rhetoric, and public health communication, this study aims to contribute valuable insights into the foundations of effective governance and communication during times of crisis. It is important to understand how differences in the level of trust and cultural implications can impact the audience´s reaction towards health authorities´ expert opinions. This knowledge can contribute to an improved handling of crises in the future.

1.1 Research questions

Main research question

RQ. *How do Norwegian versus German health authorities use rhetoric and build upon public trust in their communication during the Covid-19 crisis?*

Sub-questions

SQ1. *What rhetorical strategies do the health authorities use?*

SQ2. *What characterizes the health authorities´ rhetorical strategies compared to the opponents´ rhetorical strategies?*

SQ3. *How do Twitter/X reactions towards the health authorities differ in the two countries?*

SQ4. *How do Twitter/X reactions towards the opponents differ in the two countries?*

SQ5. *What general trends in Twitter/X reactions can be identified in both countries?*

1.2 Hypotheses

The use of rhetorical strategies is expected to differ between health authorities and opponents. Scientists representing the health authorities in the debate are expected to be rather informative than persuasive by following the rules of scientific discourse. Arguments in science are evidence-based. "Among the very basic principles that guide scientists, as well as many other scholars, are those expressed as respect for the integrity of knowledge, collegiality, honesty, objectivity, and openness." (Rosenbaum, 1993, p. 36).

Arguments in political debates however are rather aiming to persuade the audience, Therefore, the opponents are expected to use more persuasive than informative language since "in a democratic society, a prime aim of politicians is to win electoral support through persuasion" (Bull, 2015, p. 271). Thus, the link between persuasive communication and political language is considered significant. Although not all opponents in the talk shows are politicians, but also for instance journalist, nurses, or doctors, it is more unlikely that they are bound to the principles of a scientific discourse. This leads to the first hypothesis:

H1. *The experts from the health authorities use more informative than persuasive rhetorical strategies than the opponents.*

According to the findings of the study from Kjeldsen et al. the health authorities can fall back on a large *expert network* and through that connection they can highlight their expert ethos. Opponents are more likely to not be known by the public or are not associated with previously working on the topic. In addition, the health authorities are associated with political leadership and connected to experts around the world. This reference towards an established network signifies that the

public can trust the experts´ knowledge and how the situation is handled (Kjeldsen et al., 2021). Therefore, the following hypothesis is derived:

H2. *Health authorities in both countries are better in establishing expert ethos and drawing on public trust than their opponents in the TV shows.*

Germany has a healthcare system that is based on a social insurance model. Physicians receive a standard payment per patient per quarter, which has been publicly criticized by physicians as being too low to provide good care. This could have influenced trust levels in German health care. The German system offers free choice and change of physician so that the system compared to systems in other countries does not support longstanding relationships as much as other countries (van der Schee, Braun, Calnan, Schnee & Groenewegen, 2007; Blümel et al., 2020).

Cultural differences can further influence trust and the functioning of health communication. Therefore, Hofstede´s cultural dimensions are consulted. Geert Hofstede analyzed IBM employees between 1967 and 1973 in 40 countries and since then more countries have been added (Hofstede, 2009). The framework has been validated and is now a popular tool for picturing cultural differences in different countries. When looking at cultural differences that could influence public trust in Germany and Norwy, it becomes clear that people in Germany show a much higher uncertainty avoidance (Hofstede Insights, 2022). This may indicate why it may be harder for Germans to trust expert knowledge (van der Schee, Braun, Calnan, Schnee & Groenewegen, 2007). Uncertainty avoidance could also account for other outcomes. A cross-country study by Choi et al. found that uncertainty avoidance mediates the effect of trust on behavioral intentions and compliance with Covid-19 measures, like for example getting vaccinated. Individuals with high trust in governments and health authorities expressed higher uncertainty avoidance regarding information about Covid-19. This leads to stronger intentions to follow behavioral recommendations of the authorities (Choi et al., 2022).

Moreover, masculinity scores in Norway and Germany differ significantly. A feminine country like Norway strives for consensus and societal solidarity is highly valued (Hofstede Insights, 2022). This could lead to Norwegians being more trusting and less challenging towards expert opinions than Germans.

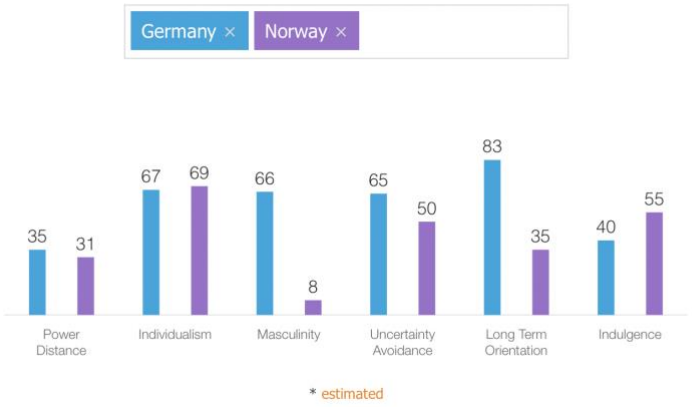

Figure 1. Country comparison Germany and Norway (Hofstede Insights, 2022).

The Edelman trust barometer 2022 clearly states that after two years of the pandemic, the times of historically high scores of trust in the German government are over. The level of trust in government, media, business, and NGOs in 2022 is back to the same level as before the pandemic. A score of 46 index points in 2022, which means under 50 points, signifies mistrust in institutions in Germany. A possible reason for the decreasing trust can be seen in the people´s perception of government and media as forces that are dividing the society. Another interesting development that could add to mistrust is that 64% of study participants stated that people in Germany lack the ability of conducting a constructive and civilized debate about controversial topics (Edelman, 2022). Based on the theory, it is expected that the Twitter/X reactions in Germany might be more negative than in Norway, due to less trust in authorities:

H3. *Twitter/X reactions are more negative towards the health authorities in Germany than in Norway.*

During the COVID-19 pandemic several German studies showed that conspiracy theories were not a societal fringe phenomenon. For example, in a study by the Friedrich Naumann Stiftung it was found that 7% of the German population hold the belief that “There is a connection between the spread of the coronavirus and the expansion of the 5G internet network” (Friedrich Naumann Stiftung, 2020, p. 18). 16% of surveyed Germans agreed with the statement that "Bill Gates wants to implant microchips in people to combat the coronavirus” (Friedrich Naumann Stiftung, 2020, p. 44). 13% of Germans in the study are convinced that “The coronavirus is a Chinese bio-weapon” (Friedrich Naumann Stiftung, 2020, p.16).

Based on the literature it is reported that Norwegians were less supportive of conspiracy theories during the pandemic. In Norway, 3,5% of the Norwegian population strongly believed in at least one of the following conspiracy theories around the Covid-19 virus and the vaccine: 1. Radiation from the 5G network contributes to spreading the virus or making people ill from COVID-19, 2. The coronavirus is part of a biological warfare program, 3. Authorities plan to implant a microchip in those who are vaccinated to control them (Wollebæk, Fladmoe & Steen-Johnsen, 2021). Some of the opponents in the talk shows argued against getting vaccinated or were skeptical about the statements or knowledge of the health authorities in general. It is therefore expected that the opponents get support from viewers who believe in alternative or conspiracy theories. Comparing the studies on belief in conspiracy theories in Germany and in Norway the following hypothesis is being suggested:

H4. *Opponents get more positive reactions on Twitter/X in Germany than in Norway.*

The trust in the health authorities in the reference period between November to December 2021 has been on a high level. In November, 74% of Norwegians, and in December, 76% of Norwegians expressed trust in the information of health authorities (Opinion, 2022).

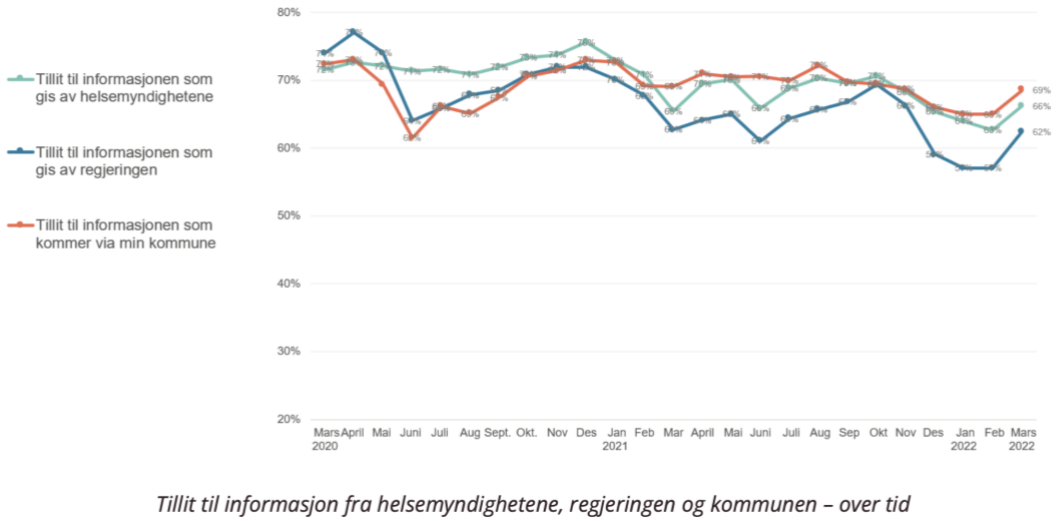

Figure 2. Trust in information from health authorities, government, and municipality (Opinion, 2022).

In Germany, the trust in the health institutions during the reference period ranged at around 4 points on a 7-point scale (1= very low trust; 7=very high trust). This signifies that most Germans rather trust than mistrust the institutions, although the level of trust is rather located towards the middle range on the scale (COSMO, 2021).

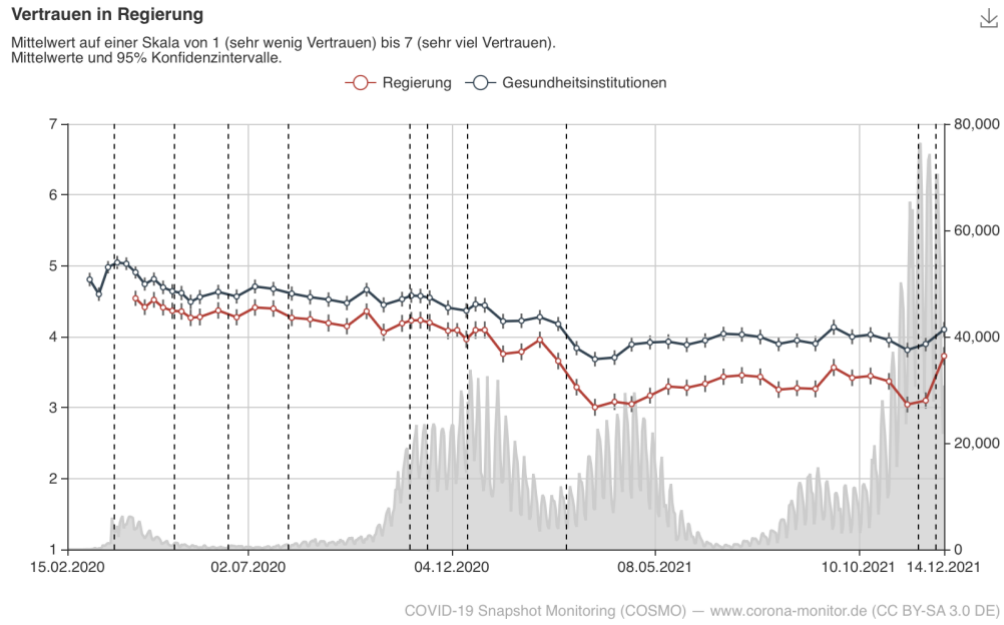

Figure 3. Trust in government and health institutions (COSMO 2021).

Due to the majority of the German and Norwegian population showing trust in the health institutions, the subsequent hypothesis is anticipated:

H5. *Health authorities in both countries receive more positive reactions on Twitter/X compared to their opponents.*

2 Theoretical background

2.1 Health care system in Germany and Norway

Health care in Norway is amongst the most expensive in Europe which is mostly financed by public funds. In contrast to Germany, many areas require substantial co-financing by the patient. That applies to adult dental care, outpatient medication, or care for old or disabled people (Sperre Saunes, Karanikolos & Sagan, 2022).

Germany´s health care system is mainly financed by public funds and provides its inhabitants with a universal health insurance with extensive benefits

while requiring comparably low cost-sharing. The German health care system offers a dense network of physicians, ambulatory and hospital care. Germany spends more money per capita on health care than any other country in the EU. Since the health care system in Germany shows a high level of service provision, the reasons leading to mistrust in health authorities may lay elsewhere than in the health care system itself (Blümel et al. 2020).

According to the German federal statistical office, in 2020, in total 487 800 hospital beds were available. However, over the years there has been a decrease in hospital beds. In 1991 there were 666 000 beds available which means a decline by one quarter compared to 2020 (Statista research department, 2023a). Nevertheless, in 2020, Germany, with 6 beds per 1000 people, had almost double the hospital bed capacity of Norway, with 3.47 beds (Statista research department, 2023b; Trading Economics, 2023).

2.1.1 Health authorities

A health authority describes a governmental organization being responsible for health care in a specific area (Cambridge Dictionary, 2022). In order to have a comparable situation in both countries, the two most relevant health authorities in the pandemic per country will be studied. This incorporates representatives of the Robert Koch Institute (RKI) and the Standing Committee on Vaccination (STIKO) in Germany, and representatives of the Norwegian Institute of Public Health (NIPH) and the Norwegian Directorate of Health (NDH) in Norway.

Robert Koch Institute (RKI)

The Robert Koch Institute (RKI) is a governmental scientific institution in the area of biomedicine. It is one of the most important institutions regarding public health in Germany. The Robert Koch Institute (RKI) is responsible for identifying, monitoring, and preventing diseases, with a particular focus on infectious diseases and preparedness for pandemics. Moreover, RKI plays a crucial role in tracking and analyzing long-term public health trends in Germany. The institute conducts epidemiological and medical evaluations of highly pathogenic and highly contagious diseases that have a significant impact on the population. The RKI serves as a scientific anchor for health-related policy decisions, offering evidence-

based recommendations and insights to guide government decisions in the realm of public health (RKI, 2022).

Standing Committee on Vaccination (STIKO)

The Standing Committee on Vaccination, in German "Ständige Impfkomission" (STIKO) is coordinated by the STIKO Office within the Vaccination Prevention Division of the RKI. STIKO comprises of an independent and volunteer expert panel responsible for developing vaccination recommendations for the population in Germany. It adheres to evidence-based criteria and considers both the individual benefits for vaccinated individuals and the benefits for the entire population. The goal is to adapt vaccination recommendations to new vaccine developments and research findings (RKI, 2023).

Norwegian Institute of Public Health (NIPH)

The Norwegian Institute of Public Health (NIPH), also called "Folkehelseinstituttet" (FHI) in Norwegian, is a governmental institution under the Ministry of Health and Care Services (NIPH, 2022). The Norwegian Institute of Public Health plays a central role in national and global health preparedness. The institute serves as the state's infectious disease control agency, encompassing responsibilities such as procurement, storage, distribution, and monitoring of vaccines in vaccination programs. In its role as a scientific knowledge generator, the institute is tasked with supporting the Ministry of Health and Care Services, the Norwegian Directorate of Health, the Directorate of e-Health, the Norwegian Food Safety Authority, the Norwegian Environment Agency, and other national and local authorities and services with relevant expertise. This includes the compilation and dissemination of knowledge on health-related topics to promote evidence-based practices and public discourse (NIPH, 2022).

Norwegian Directorate of Health (NDH)

The NIPH shares some responsibilities with another health institution under the jurisdiction of the Ministry of Health and Care Services, the Norwegian Directorate of Health (NDH) or "Helsedirektoratet" (HD) in Norwegian. The Norwegian Directorate of Health is committed to enhancing the overall health of the entire population through comprehensive and targeted initiatives that span across various services, sectors, and administrative levels. They serve as both an

expert advisory body and a regulatory authority. This entails, among other responsibilities, providing professional guidance, implementing established policies, and overseeing the enforcement of laws and regulations in the healthcare sector. Additionally, the Norwegian Directorate of Health bears the overarching responsibility for national health preparedness (NDH, 2023).

2.1.2 Organizational crisis preparedness

Organizational crisis preparedness, as implied by Carmeli and Schaubroeck (2008), refers to the proactive measures and strategic planning undertaken by an organization to effectively navigate and manage crises. It involves the development and implementation of comprehensive plans, procedures, and mechanisms designed to prepare for, detect, contain, and recover from crises that may threaten various aspects of the organization (Carmeli & Schaubroek, 2008).

In addition, Penrose (2000) and Marra (1998) emphasize the importance of implementing enterprise-wide crisis plans for effective crisis management. Proactive crisis management can mitigate the damage caused by a crisis. Organizations that are prepared for crises are better equipped to learn from the experience, making them more resilient for future crises. Conversely, a reactive approach tends to result in more significant damage. Smits and Ally (2003) highlight the significance of behavioral readiness, stating that without it, the effectiveness of crisis management becomes uncertain.

RKI´s national pandemic plan

The RKI (2017) showed a robust preparedness through their national pandemic plan. The four overarching goals of this plan include: the reduction of morbidity and mortality in the general population, ensuring the care for diseased individuals, the maintenance of essential public services, and providing reliable and timely information for political decision-makers, professionals, the public, and the media. Communication poses a central measure in RKI´s pandemic plan already early on. Public awareness and involvement of key stakeholders are reached through providing informational material and involving the media. Regular communication with decision-makers, the mass media, and the public needs to be ensured. The spread dynamics can be influenced through providing information on

personal hygiene, vaccinations, behavioral recommendations, and the current situation (RKI, 2017; see Appendix 1).

In order to effectively manage the situation, the authorities responsible for handling the crisis must coordinate their communication tools, content, and strategies. Successful information dissemination and communication requires adherence to coordination processes based on the responsibilities along with the establishment of crisis teams corresponding to the severity of the situation. Crisis communication is administered mostly centralized either through the Federal Ministry of Health, the Federal Centre for Health Education (BZgA) or the Robert Koch institute. The municipalities are only responsible for communication in case of local crises (RKI, 2019).

Norwegian Ministry of Health and Care Services´ preparedness plan

The preparedness plan of the Norwegian Ministry of Health and Care Services falls into the context of the government's overarching long-term strategy for handling the Covid-19 pandemic. The goals include controlling the spread of infection to ensure it remains manageable and does not exceed the capacity of healthcare services, including testing, isolation, contact tracing, and quarantine (Norwegian: TISK). Simultaneously, preparations must be in place to suppress local or national outbreaks (Norwegian Ministry of Health and Care Services, 2020).

The plan outlines responsibilities, decision-making levels, coordination, and a system for risk assessment of the infection situation, including risk levels and associated examples of infection control measures (referred to as action packages). To implement the plan, risk assessments as outlined in the government's long-term strategy must be considered. The preparedness plan is being continuously updated as more knowledge becomes available regarding the effects of the Covid-19 vaccination (Norwegian Ministry of Health and Care Services, 2020; see Appendix 2).

In Norway, it is remarkable that, during a crisis, the primary responsibility for communication lies with the municipalities. The communication interventions are typically led by the municipal crisis management and outlined in the municipality's overarching crisis plan and information preparedness plan. The municipal physician and the municipality's communication officer play crucial roles as advisors to the crisis management, collaborating to create information about the outbreak. Municipalities can seek support for communication

efforts from the Norwegian Institute of Public Health (NIPH), either upon outbreak notification or at any later stage in outbreak management. NIPH coordinates communication support from health authorities (NIPH, 2020).

Comparing crisis plans

The RKI´s crisis plan and the crisis plan of the Norwegian Ministry of Health and Care Services share fundamental principles while offering distinct approaches to crisis management. The RKI´s plan leans towards targeted actions, while the NIPH plan adopts a structured, step-by-step approach with a strong focus on continuous learning and improvement. The diversity in these strategies allows for flexibility in addressing a range of public health crises.

Furthermore, the plans of the German Robert Koch Institute (RKI, 2017) and the Norwegian Ministry of Health and Care Services (Norwegian Ministry of Health and Care Services, 2020) exhibit alignment with several key elements of organizational preparedness as outlined by Carmeli and Schaubroek (2008):

1. Ongoing Assessment:

The RKI plan emphasizes continuous monitoring and surveillance, aligning with the concept of ongoing assessment. Regular analysis of the pandemic events, evaluation of measures, and optimization of planning contribute to a dynamic understanding of the crisis landscape. The Norwegian Ministry of Health and Care Services plan echoes ongoing assessment through the collection and analysis of various data, providing a comprehensive situational overview. Reporting and sharing of necessary information contribute to the continuous monitoring of trends and events.

2. Investment in Prevention and Risk Management:

While the RKI plan does not explicitly detail preventive measures, the focus on analysis and evaluation suggests a commitment to learning and adjusting strategies based on past events. The Norwegian Ministry of Health and Care Services plan emphasizes preventive measures by investing in surveillance, reporting, and risk assessment. It outlines steps to anticipate and manage risks through ongoing data analysis.

3. Adjustment and Learning:

The RKI plan aligns with the concept of adjustment and learning by emphasizing the analysis of pandemic events and the evaluation of implemented measures. This suggests a commitment to adapting strategies based on experiences. The Norwegian Ministry of Health and Care Services plan explicitly includes investigation and analysis of incidents to

understand causes, demonstrating a focus on learning from failures and adjusting strategies accordingly.

4. Leadership Perception of Risk:

The RKI plan does not explicitly mention leadership perception of risk. However, the emphasis on ongoing analysis and evaluation implies a recognition of the importance of staying informed and responsive. The Norwegian Ministry of Health and Care Services plan reflects leadership perception of risk through the reporting and collaboration steps, indicating a commitment to involving relevant authorities based on early notifications.

5. Crisis Management Programs:

The RKI plan emphasizes crisis management through the analysis of pandemic events and the implementation of concrete measures. While not explicitly labeled as crisis management programs, these actions align with the concept of addressing crises as they arise. The Norwegian Ministry of Health and Care Services plan outlines a structured crisis management process, including notification, investigation, risk assessment, and the implementation of measures. This aligns with the design and implementation of key plans and mechanisms for crisis management.

6. Cultural and Structural Considerations:

The RKI plan does not explicitly address organizational culture or structural considerations. However, the focus on analysis and evaluation implies a responsiveness to the organizational context. The Norwegian Ministry of Health and Care Services plan recognizes the influence of organizational structures through reporting and collaboration with relevant players. The emphasis on a comprehensive situational overview reflects an awareness of cultural and structural factors.

In summary, both the RKI and Norwegian Ministry of Health and Care Services plans demonstrate alignment with key elements of organizational preparedness, with each plan emphasizing different aspects based on its unique structure and context. The RKI plan leans toward adaptability and learning, while the NIPH plan places explicit emphasis on preventive measures and structured crisis management processes.

2.2 Modes of communication

2.2.1 Public sector communication

Public sector organizations are regarded as means of political goals that result out of political decisions. This indicates that the goals are set by members

outside of the organization (Fredriksson & Pallas, 2018). Public sector organizations are expected and sometimes even obligated by law to take the interests of a large variety of stakeholders into account, for instance, politicians, citizens, companies, unions, the media, experts, and lobby organizations. Public sector organizations are to a large degree governed by professionals, for example, doctors, teachers, or social workers that each bring in their own set of values (Fredriksson & Pallas, 2018). Moreover, the public sector faces difficult constraints regarding communication compared to the private sector. These include an unstable and more complex environment, more extensive legal and formal restrictions, stricter procedures, and diverse products and objectives (Gelders, Bouckaert & van Ruler, 2007).

Effective government communication with the public is crucial during times of crisis, demanding accuracy, timeliness, and responsiveness to public inquiries. Delivering up-to-date information has been shown to enhance public satisfaction (Wang, Huang, Cai, 2022). Communication during emergencies presents unique challenges as it is essential for coordinating actions. Research indicates a positive correlation between the frequency of communication and the level of trust established (Hollingshead, 2010). Therefore, studying the health authorities' public communication will be helpful to find practical implications on how to communicate effectively in times of crisis.

2.2.2 Risk communication

Risk communication addresses a wide range of topics. Gaining institutional trust is seen as a major challenge in risk communication. The conception of risk communication has been historically changed from the sender transporting information to the recipient, to the sender and the recipient interacting and building a common understanding of the issue at hand (Hampel, 2006). The OECD states that risk communication signifies an important part of the risk management strategy. "Effective risk communication increases the awareness of the stakeholders, such as households, businesses and communities about their exposure and vulnerability to hazards. It also informs them about measures they can take for prevention, mitigation, and emergency preparedness" (OECD, 2016, p. 13). Therefore, risk communication can help reduce human as well as economic losses

from disasters. Without proper risk communication the public may underestimate risks and take insufficient actions (OECD, 2016).

2.2.3 Health communication

Health communication is characterized by interpersonal or mass communication that is directed at improving the health of individuals as well as populations. Thus, health information needs to be easily accessible and understandable to a wider public. In addition, information should be tailored to the individual needs, and sociocultural background of the audience. Proficiency in comprehending health information significantly influences health-related behaviors and outcomes. It is also important to note that health communication and the understanding of the audience is always tied to the respective population´s health literacy (Ishikawa & Kiuchi, 2010).

Health communication has become an increasingly important topic. It impacts every aspect of well-being and health, for instance "disease prevention, health promotion and quality of life". The field gains popularity in research due to the global challenges posed by major threats and the importance of understanding human behavior to prevent negative outcomes (Rimal & Lapinski, 2009, p. 247).

2.2.4 Science communication

Science communication according to Burns, O´Connor and Stocklmayer (2003) can be defined as the right set of abilities, communication channels, activities, and conversations to evoke personal reactions to science, which may encompass the following: "Awareness, including familiarity with new aspects of science", "Enjoyment or other affective responses, e.g. appreciating science as entertainment or art", "Interest, as evidenced by voluntary involvement with science or its communication", "Opinions, the forming, reforming, or confirming of science-related attitudes", and "Understanding of science, its content, processes, and social factors" (Burns, O´Connor & Stocklmayer, 2003, p. 191).

Effective science communication involves providing information to individuals about the benefits, risks, and associated costs of their decisions, enabling them to make informed choices. It is important to note that, despite

effective communication, consensus may not always be achieved. The public's support for science relies on the level of trust and value they place in it (Fischhoff, 2013).

2.3 Trust and credibility

Next, it needs to be questioned why and in what ways trust and credibility are central constructs in public sector communication during the pandemic. Trust is most commonly defined as a "form of expectation towards other people's actions and their fulfilment of commitments" (Kjeldsen, Ihlen, Just & Larsson, 2021, p. 2). For risk communication to be successful it needs to be supported by the public and seen as legitimate. Consequently, health authorities need to draw on public trust. The public needs to trust the authorities so that the communicated policies are adhered to. Furthermore, not only arguments matter in the public debate but also the communicator´s credibility. Trust and credibility become central issues, when the subject is complex and disputed (Kjeldsen, Ihlen, Just & Larsson, 2021).

For the comparison between Norway and Germany different levels of trust in the authorities play a critical role. In Norway, trust increased during the pandemic, aligning with the country's general description as a high-trust society according to Kjeldsen et al. (2022). In contrast, Germany experienced a decline in trust during the same period (Statista research department, 2022). It is especially important in times of crisis to build upon public trust (Kjeldsen et al., 2022). Trust is also reported to make a difference in people´s life satisfaction: "Individuals with low levels of pre-crisis trust in institutions like the government, courts or the media report a stronger decrease of satisfaction than individuals with higher levels of trust" (Bittmann, 2022).

2.4 Rhetorical situation

To build trust, that is needed to convince recipients of the conveyed message, communicators try to establish a persuasive rhetorical situation. Where there is a rhetorical discourse there is also a rhetorical situation present. Bitzer defines rhetoric as follows "rhetoric is a mode of altering reality, not by the direct application of energy to objects, but by the creation of discourse which changes reality through the mediation of thought and action" (Bitzer, 1968, p. 4). The rhetor

is responsible for engaging the audience so that it intermediates change. Therefore, rhetoric in general is always persuasive.

A rhetorical situation is made of three central parts. First, there is the *exigence*. Exigence describes and urgent problem. A thing that needs to be solved or changed. Things that cannot be changed like the weather for example are no exigence in a rhetorical sense. An exigence is also not rhetorical when it the problem can only be solved by other means than discourse. Second, there is the *audience.* An audience is required that is capable of being influenced and can serve as mediator for change. Third, there is *constraints*. Constraints can be people, objects, events, or relations that can constrain the action to solve the exigence (Bitzer, 1968).

In the rhetorical analysis of the health authorities and opponents the relation of persuasive to informative language will be studied. An informative speech seeks to provide the audience with knowledge about a particular subject, while a persuasive speech endeavors to prompt the audience into taking specific actions or embracing the beliefs and opinions advocated by the speaker (Seiler, 1988).

Rhetoric and trust

Moreover, the use of rhetoric can influence trust (König & Wiedmann, 2015; Yang, Kang & Cha, 2015). Trust is an essential part of a functioning society. Public trust in health care can be described as an attitude people gained though experiences with health representatives of the public sector institutions. In contrast to interpersonal trust, it is the trust that an individual or a group place in a societal institution or a system. However, interpersonal trust and public trust are often found to be interrelated. It has been discovered that people in Germany showed less trust into health care than countries like England or Wales which show very high trust levels. Further, it has been suggested that cultural differences can be a reason for the different levels of public trust in health care (van der Schee, Braun, Calnan, Schnee & Groenewegen, 2007).

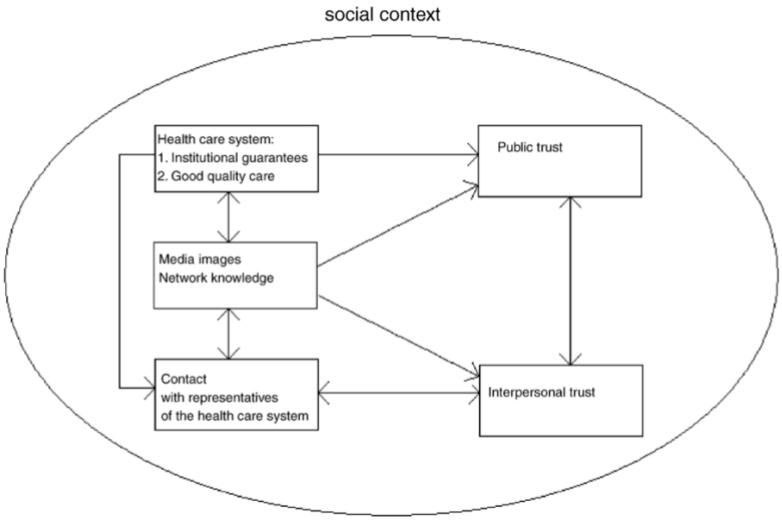

Figure 6. Model of public trust in health care (van der Schee, Braun, Calnan, Schnee & Groenewegen, 2007, p. 57).

2.5 Expert ethos

Expertise describes a person´s superior competence. Some view expertise as based on the signs and symbols of a person's interaction with their surroundings and audience. This perspective considers expertise as an attributed state, where performance is assessed independently of conventional notions of "real knowledge". In an autonomous expertise framework, external recognition becomes inconsequential, allowing a person to possess expert knowledge without needing acknowledgment from others. An expert may have knowledge, but it does not matter if the person fails to convince others of it. An expert's ethos is a multifaceted outcome of both their reputation and performance within a specific rhetorical instance. Aristotle emphasized that ethos needs to be consciously built and publicly presented (Hartelius, 2011).

The six congruities are utilized to analyze the formation of expertise. These congruities are regarded as discursive techniques employed to establish the ethos of expertise. The first congruity involves *expert networks*, emphasizing the strategic association with other experts and fields of expertise. The second is *expert techne*, focusing on articulating the epistemologies and methodologies of one's expertise. *Expert pedagogy*, the third congruity, involves openly sharing the process and uncertainties of knowledge and method. *Deference/participation*, the fourth congruity, reflects the choice of experts to either invite audience acquiescence or

encourage involvement. *Expertise as a fitting response*, the fifth congruity, addresses a rhetorical situation by positioning expertise as the most appropriate solution. Lastly, expertise is constituted by creating *relevance to everyday life*, making experts and their subject matter recognizable and relatable to the public (Kjeldsen et al., 2021).

While this study does not assert quantitative generalizability, it is able to provide support for existing theories regarding expert ethos, which can be put into practice. Based on Kjeldsen et al. this study suggests the following guidelines for effective rhetoric: (i) Employ open and inviting language, (ii) Ground expertise in everyday contexts, and (iii) Foster alliances and networks (Kjeldsen et al., 2021).

3 Methodology

This study employs a case study approach focusing on two television programs—one German, 'Markus Lanz' (ZDF), and one Norwegian, 'Debatten' (NRK). The analysis centers on the rhetorical situation and viewer reception. The health authorities featured in these shows include experts from the Norwegian Institute of Public Health (NIPH) and the Norwegian Directorate of Health (NDH) in Norway, and the German Robert-Koch Institute (RKI) and the Standing Committee on Vaccination (STIKO) in Germany.

The qualitative analysis consists of a rhetorical examination of health authorities and their identified counterparts in six episodes—three from 'Markus Lanz' (ZDF) and three from 'Debatten' (NRK). The selected timeframe is November to December 2021, marked by the emergence of the Omicron variant and a surge in infection rates in both countries (MDR, 2022; Government.no, n.d.). This period ensures a comparable number of shows featuring relevant health authority experts in both countries.

The subsequent phase of the analysis incorporates a quantitative sentiment analysis facilitated by the AI system ChatGPT. For the 'Lanz' show, only Twitter/X comments published during the broadcast timeframe were considered, a crucial distinction given that the episodes aired from 23:30 to 00:45, technically spanning two days. This was essential to separate relevant comments for the specific episode

from those related to additional episodes or the podcast, often referenced with the hashtag 'Lanz.' Conversely, for the Norwegian show 'Debatten,' the broadcast did not cross midnight, avoiding overlaps in comments referring to other episodes or a podcast. Due to this and the limited comments during the debate, the reference period for Norwegian episodes covers the time from the start of the broadcast to the end of the respective day.

To filter tweets related to the shows, hashtags such as #NRKdebatten, #NRKdebatt, and #Debatten for the Norwegian show, and #MarkusLanz and #Lanz for the German show were identified. The subsequent coding of Twitter/X posts will establish six categories, encompassing negative, neutral, and positive sentiments towards both health authorities and opponents. The categories include: (1) positive towards health authorities, (2) neutral towards health authorities, (3) negative towards health authorities, (4) positive towards opponents, (5) neutral towards opponents, and (6) negative towards opponents.

4 Results

4.1 Rhetorical analysis

4.1.1 Lanz from 02.11.2021

On 2nd of November 2021 the guests of the talk show “Lanz” have been invited to talk about the Covid-19 vaccination program. The show with the title “Vaccination debate: “Rights and responsibilities of the public” (German: Impfdebatte: Rechte und Pflichten der Bevölkerung) highlights differing opinions about the vaccination and other measures aiming at reducing the infection rate. This very question forms the crux of the discussion on the show, featuring journalist Robin Alexander, Alena Buyx, Chair of the German Ethics Council, philosopher Svenja Flaßpöhler, and RKI scientist Dirk Brockmann. Svenja Flaßpöhler is identified as the main opponent towards the agenda of the health institutions, and therefore the other guests who are mainly agreeing with the health institutions will be omitted.

Dirk Brockmann (health authority, RKI)

RKI scientist Dirk Brockmann strategically employs various techniques to establish expert ethos. Initially, he emphasizes the significance of *expert pedagogy*, asserting that it helps to explain to people how the Covid-19 vaccine functions. By

prompting questions such as, "What is the difference between a vaccine and a virus?" he directs attention towards expert-driven explanations. Brockmann contends that individuals must choose between vaccination and infection, underlining *expertise as a fitting response*. Furthermore, he underscores the importance of clarifying that the vaccine only includes partial virus information. Brockmann reflects upon how we manage to get more people vaccinated and how to meet people's skepticism. In other countries it is emphasized that the vaccination also protects others and not only oneself. This way of communicating highlights expertise as creating *relevance to everyday life*, making the subject matter relatable to the public. It is communicated for example that through the vaccine children can visit their grandparents again. Finally, Brockmann points out that is it important to reduce complexity in health communication.

In summary, Dirk Brockmann's rhetoric is characterized by a combination of personal experience, a commitment to *expert pedagogy*, an emphasis on *relevance to everyday life*, and a strategic focus on simplifying communication for a broader understanding.

Svenja Flaßpöhler (opponent, philosopher)

Svenja Flaßpöhler predominantly represents the viewpoint of individuals who are still hesitant to receive the vaccine. Flaßpöhler shares a personal example. In her daughter's school, there are still no air filters after two years of the pandemic. Despite this, children are being urged to get vaccinated. In addition, Flaßpöhler points out that the virus poses different risks for different groups, and some people, especially from the former GDR, have significant distrust towards the government. She directs her critique towards the government and the health institutions, positing that their policy measures have inadvertently led to escalating infection rates. The government´s actions led to an erosion of trust among those who have chosen to not get vaccinated. In the German society, this loss of trust emerges as the pivotal factor that threatens unity. From her standpoint, the discourse surrounding "vaccination" is essentially a personal matter, as it entails a deeply intimate intervention. Consequently, she states that escalating pressure on the unvaccinated through initiatives like the "2G rule" (meaning vaccinated or recovered from Covid-19) would only serve to amplify defiance.

Overall, Flaßpöhler uses a combination of personal anecdotes, factual observations, and hypothetical scenarios to build a persuasive argument against certain measures and to advocate for better conditions in healthcare and education. Unlike Dirk Brockmann, she does not use a rhetoric that builds on expert ethos.

4.1.2 Lanz from 16.11.2021

On November 16, 2021, the "Lanz" talks about the booster vaccination ("Corona: Who needs a booster vaccination?", German "Corona: Wer braucht eine Booster-Impfung?"). STIKO´s chairman Thomas Mertens argues on behalf of the health authorities, while Christian Berndt, journalist of the newspaper Sueddeutsche Zeitung is identified as opponent, criticizing the strategy on the vaccination campaign. The remaining guests, FDP politician Alexander Graf Lambsdorff, and editor of the news magazine Spiegel, Muriel Kalisch, do not play a significant role as opponents during the debate and will therefore not be considered in the following rhetorical analysis.

Thomas Mertens (health authority, STIKO)

The host Lanz points out that there were conflicting statements from the Minister of Health, Jens Spahn and the STIKO. Spahn said that people can now get the third dose after six months from the second dose, but the STIKO recommendations only include people over 70 years. Mertens corrects that, in his opinion, the statements are not conflicting because it is now approximately six months since the over 70-year-olds received their second dose. In the following, Lanz asks why only 11 percent of people in Germany are boostered and suggests it could be because of conflicting statements about who is eligible to get the booster. Mertens admits there has been miscommunication: "Why don´t we say what we mean". In addition, Mertens explains that the STIKO did not agree with Jens Spahn´s choice of words. Although the STIKO would have chosen different words, the wording was already set through the health minister conference. When confronted with Söder's critique about why the vaccination rates are not as high as in Israel, Mertens refers to a publication that demonstrates Germany essentially took the same steps as Israel, highlighting Mertens' *expert network*.

Further, Mertens establishes *expert pedagogy* by openly communicating about the process of drawing vaccine recommendations. He also uses *expert techne*

to point out the epistemology and methodology of his expertise. Mertens outlines two reasons for getting vaccinated. The first is the protection of the individual from the infection. The second reason is to reach an “epidemiological effect on the decline of infections”. Following the second argument the effect is highest when vaccinating the most mobile, younger groups of society. To achieve this effect, however, the vaccination rate in the population needs to be very high. Therefore, it now makes more sense to vaccinate the elderly, who can benefit from the vaccination on an individual basis. Regarding vaccinations for children, Mertens remains cautious. Mertens states that children are not the problem, as they thankfully do not contribute to the overload of the healthcare system. Mertens asserts that 35 children were in intensive care during the pandemic. Lanz, however, corrects him, noting that 32 children had died from Covid-19. Mertens then makes a contentious statement, saying, "32 died, sorry, 32 doesn't matter" ("32 sind gestorben, entschuldigung, 32, ist egal"). Mertens emphasizes that the vaccination for children needs a specific medial indication. The next question is how much vaccinating children affects the spread of the virus. The third question is how big the risk for children is receiving the vaccine. This needs to be quantified for getting an evidence-based recommendation. Through explaining the process and its weaknesses Mertens exhibits *expert pedagogy.*

Furthermore, he remarks that the process inside the STIKO is intense, involving more than just data analysis. The STIKO even had video conferences with the authorities in Israel. This highlights Mertens establishing expert ethos through referring to the STIKO being included in relevant *expert networks.* Moreover, Mertens acknowledges that Germany is heading towards dramatic infection numbers in the fall and winter, potentially overloading the healthcare system. When questioned by the host, Markus Lanz, about why this was not clearly communicated, Mertens admits that the STIKO might not have been explicit enough.

Throughout the discussion, Mertens establishes expert ethos, openly communicates about the processes and decisions inside STIKO, underlining the importance of evidence-based recommendations, and highlighting STIKO's involvement in relevant expert networks.

Christina Berndt (opponent, SZ journalist)

Christina Berndt, science journalist for the newspaper SZ, questions the pace and strategy of the German vaccination campaign. She asserts, "The communication about booster shots came far too late." Berndt attributes the worsening COVID-19 situation to both a low vaccination rate and the fact that the virus has not been a significant topic in election campaigns and coalition negotiations. She notes a lack of attention to the virus in these contexts and suggests that people may be fatigued with the ongoing presence of the virus. Berndt supports the appeal to get all individuals vaccinated. She argues that using the wording "only those over 70" would exclude all the others from feeling addressed. Previously, only individuals aged 70 and above were recommended to receive booster shots. The Minister of Health publicly declared the official end of the pandemic situation, but according to Berndt this announcement was misunderstood by many as the end of the entire pandemic. Berndt acknowledges that the STIKO has consistently incorporated data from Israel or the USA into its recommendations. However, she points out that there is still much to learn from other countries. She holds the STIKO in high regard, but when it comes to boosters, she explains that the data consistently focuses on those over 60 and not over 70. Even in Germany, the data shows that individuals over 60 frequently end up in intensive care units. At this point Berndt tries to establish expert ethos with using a mix of *expert techne* and *expert pedagogy* when referring to studies made on the hospitalizations and vaccinations. She criticizes the *expert techne* and *expert pedagogy* of the STIKO. She finds it inappropriate for the STIKO to "pre-sort" the data for themselves.

Overall, Berndt employs a critical and assertive rhetoric in her analysis of the German vaccination campaign. Her rhetoric reflects a nuanced evaluation of the vaccination strategy, incorporating considerations of communication timing, target groups, and the necessity of booster shots for a wider population.

4.1.3 Lanz from 01.12.2021

The next episode features one member of the RKI, physicist Dirk Brockmann and one member of the STIKO, Martin Terhardt. Other guests of the show include SPD politician and minister president of Lower Saxony, Stephan Weil, CDU politician and minister president of Saxony-Anhalt, Reiner Haseloff, and Hannah Bethke, editor for the Swiss newspaper “Neue Zürcher Zeitung

(NZZ)". The show aired on 1st of December 2021 and discusses the responsibility of the STIKO during the pandemic ("Die Verantwortung der STIKO in der Pandemie").

Martin Terhardt (health authority, STIKO)

Stephan Weil and host Markus Lanz request faster decisions from the STIKO. Martin Terhardt admits that the STIKO has "overslept" important decisions during the summer. He uses *expert techne* by explaining STIKO´s practices. Mertens declares that they gave out vaccine recommendations, introduced vaccine centers, enabled vaccinations in medical practices and companies, and tried to record vaccination rates. Terhardt acknowledges that the recording of vaccination numbers has not been adequate, thereby demonstrating *expert pedagogy*. In addition, they did not think about a strategy on what to do if the vaccination rates remain too low. Terhardt clarifies that there are only 18 members in the STIKO who work voluntarily in their free time on this committee. Only three members related to the RKI work full-time. This indicates that the STIKO has limited resources at its disposal, which consequently prolongs decision-making processes.

Next, Terhardt points out that the European Medicines Agency (EMA) grants specific approvals for vaccines, therefore referring to the *expert network* the STIKO is integrated in. Once the EMA approves a vaccine, the federal government alone can decide how and when to deploy it. It is disconcerting for the other guests that in a critical crisis period like the COVID-19 pandemic, STIKO takes a long time to make decisions, while according to Lanz neighboring EU states act much faster. Lanz states that Italy may be so fast with the vaccinations because they do not have a STIKO. Thus, Terhardt explains that the STIKO works precisely with the data at hand. Furthermore, Germany has a tradition of being risk averse. Consequently, one often must wait until there is a substantial dataset and recommendations can be made. This process outlines STIKO´s *expert techne*. Terhardt comments that during normal times, STIKO would require about two years to generate accurate recommendations. Hence, in his opinion, STIKO is working rapidly.

In summary, Terhardt's rhetoric is characterized by expert ethos, transparency about STIKO's challenges, an explanation of their structure, defense of their data-driven approach, and acknowledgment of communication gaps.

Dirk Brockmann (health authority, RKI)

Dirk Brockmann introduces himself as "modeler" and someone who studies the dynamic of infections, consequently underlining his *expert techne.* Further, Brockmann asserts that "early and fast are already over" about the introduction of measures against the spread of the virus. According to Brockmann, nationwide and uniform solutions, such as contact restrictions, instead of slow local measures are needed.

Moreover, Brockmann expresses shock at the narrative of the STIKO member and the fact that Health Minister Jens Spahn had not changed anything about the committee's resource constraints throughout the entire pandemic. Brockmann raises concerns about the current situation of the STIKO in the country, suggesting that it seems impractical for the STIKO to operate with 18 volunteers and limited resources. Regarding the challenges of the STIKO, Brockmann cites Dr. Michael Ryan from the WHO that "speed trumps perfection". This embodies a hint at Brockman´s *expert network*. According to Brockmann, a more efficient approach to the STIKO would involve establishing a transdisciplinary team capable of responding swiftly to dynamic situations, complemented by guidance on science communication. He proposes that such an approach would require a substantial financial investment and a team of experts capable of immediate response.

In summary, Brockmann combines a sense of urgency with a critical assessment of the current system, offering a solution-oriented approach that involves restructuring the STIKO for better responsiveness and effectiveness in pandemic situations.

Stephan Weil (opponent, SPD politician)

The Ministers of the federal states, as explained by Stephan Weil, aim for both 30 million vaccinations by the end of the year and nationwide contact restrictions. Weil advocates for uniform regulations across the country, including the "2G rule" in restaurants and stores, as well as complete bans on discos, bars,

and large events above a certain incidence level. Weil expresses the desire to keep schools open. When asked by Lanz whether an unvaccinated person would be in a lockdown, Weil agreed without wanting the term "lockdown for the unvaccinated" to be associated with him.

Furthermore, Weil responds to Terhardt that it is true that the government can make independent decisions, but many people rely on STIKO's recommendations. This was particularly evident during the AstraZeneca debacle in spring, when the government and the STIKO offered different age-related recommendations for the vaccine. Additionally, Lanz and Weil agree on that many doctors in Germany would follow STIKO's guidance, hence in their opinion this committee wields a more significant influence in the pandemic than Terhardt admits. Finally, Weil concludes that he learned during the pandemic that there is no alternative out of the crisis except from attaining a high vaccination coverage.

Overall, Weil's rhetoric combines practical considerations, acknowledgment of societal influences, and a focus on achieving effective vaccination coverage.

4.1.4 Debatten from 09.11.2021

The talk show “Debatten” hosted by Fredrik Solvang on NRK on 9th of November 2021 deals with the issue that only 70 percent of the Norwegian population at that time are fully vaccinated. In addition, there is the risk of older people getting infected by unvaccinated health care workers which is also indicated by the show´s title “Elderly getting infected by unvaccinated health care workers” (Original “Eldre 27mites av uvaksinert helsepersonell”). Nine guests were invited to talk about the topic: Health Director Bjørn Guldvog, Labor party member and Vice Chairwoman in the Health and Care Committee Cecilie Myrseth, Progress party member and second vice chair on the Health and Human Services Committee Bård Hoksrud, elderly ombudsman Bente Lund Jacobsen, specialized nurse Dina Benedicte Bøckman, Municipal Chief Physician in Molde Cato Innerdal, Youth Captain in the Military Medical Corps Niklas Heia, Editor of the Polish web portal Polonia.no Edith Stylo, and NIPH Director Camilla Stoltenberg. Bjørn Guldvog (NDH) and Camilla Stoltenberg (NIPH) represent the health authorities while Dina

Benedicte Bøckman (nurse) and Cato Innerdal (Municipal Chief Physician in Molde) are identified as opponents in this show.

Bjørn Guldvog (health authority, NDH)

First, Health Director Bjørn Guldvog responds to Bøckman, a nurse who is skeptical about the mRNA vaccine. He tells the nurse that he is sure about that she is a very skilled healthcare worker. However, he thinks that it is problematic that many healthcare workers are not vaccinated yet. Further Guldvog expresses his understanding, saying he knows that the vaccine is a new technology that many are curious about. Guldvog explains that nothing substantiates the claim that it is better for people to go through the infection compared to taking the vaccine. Moreover, Guldvog is transparent and honest in his communication, exhibiting *expert pedagogy*, when he admits that vaccinated individuals get infected to a greater extent than expected.

Next, Solvang asks Guldvog how many health care workers are vaccinated. Guldvog admits that he does not have exact numbers on how many are vaccinated. Thus, admitting lacks information speaks in favor of his transparent communication. Furthermore, Guldvog explains that it is a question of leadership to assess the risk of infection for the vaccinated. The health institutions continuously conduct risk assessments and think about how to use the available resources. This highlights his use of *expert techne* and *expert pedagogy* elucidating about how the knowledge is acquired.

When asked about why the NDH did not provide more concrete guidelines on what to do with unvaccinated health care workers, Guldvog admits that they there is room for improvement. Nevertheless, Guldvog means it is the leadership´s responsibility of each municipality to decide about the measures themselves. Guldvog adds that he thinks it is a political debate and decision to decide on compulsory vaccination. In addition, he emphasizes that replacements of staff in health care facilities are not a solution due to the lack of personnel.

Next, Solvang claims that many think that the statistic shows that the vaccine does not work. Bjørn Guldvog does not agree and explains the methods of coming to this conclusion, by establishing *expert techne*. He explains that the

vaccine has two functions: the immediate but temporary production of antigens on the one hand, and on the other hand, the effect that the virus will be recognized again and lead to the system creating new antigens. However, the health authorities are surprised over that there are more people getting seriously ill despite the vaccine than expected. Still, in his opinion the vaccine provides a significant protection against the virus.

Finally, Guldvog appeals to the population that new measures need to be introduced to prevent a swift increase in infections and that the most important measure is to stay at home when feeling sick. This underscores his use of calling for *participation* of the audience.

In summary, Bjørn Guldvog strategically combines transparency, empathy, and expert knowledge to address concerns, explain complex topics, and guide the audience toward responsible actions. His rhetorical approach reflects a balance between *expert techne* and *expert pedagogy* in the context of public health communication.

Camilla Stoltenberg (health authority, NIPH)

Solvang asks Stoltenberg how many of the 30% in the population that are still not fully vaccinated have medical reasons for not getting vaccinated. She answers that those are not many people because the 30% also include children that have not had the possibility to get the vaccine yet. She adds that 90% of the population over 16 years is fully vaccinated. This demonstrates Stoltenberg´s use of *expert techne*. She is honest about that she does not know the number of those who cannot get vaccinated for medical reasons. “I don’t have an exact number for that”. Being open about shortcomings in knowledge can be described as showing *expert pedagogy*. Solvang criticizes that the health authorities should have been better at informing foreigners living in Norway about the vaccine. Stoltenberg responds that they have done that in over 40 languages. Nevertheless, many feel a connection to their home country and the vaccination rate in their home countries reflects on their own behavior.

When asked about how the corona certificate will be used in Norway, she answers that it could be a requirement when entering the country. This relates to

explaining the *relevance to everyday life* of the Corona vaccine in travel situations, and forms an important technique to establish expert ethos. How the certificate will be use inside Norway is still uncertain. NIPH has not come to a conclusion about that yet.

Furthermore, Stoltenberg provides data from Norwegian hospitals, that most hospitalized people are elderly that are fully vaccinated, or unvaccinated people around 50 years old. This demonstrates Stoltenberg´s epistemology of knowledge and thereby her *expert techne*. When Solvang asks about how they get infected, she explains that they are infected by both, the vaccinated an unvaccinated. However, the vaccinated have a lower risk of infecting others. Moreover, Stoltenberg claims that the vaccine provides a protection in over 90 percent of cases, but the last 10 percent are often those who have a weak immune system and can get seriously ill.

To conclude, Stoltenberg integrates statistical information, transparency about knowledge limitations, and a focus on practical implications to establish herself as a credible and trustworthy communicator in the realm of public health. Her responses reflect a balanced mix of strategies to establish expert ethos.

Dina Benedicte Bøckman (opponent, nurse)

Nurse Dina Benedicte Bøckman introduces herself by stating that she is not vaccinated, because she is skeptical about the mRNA vaccine. She claims that there is little knowledge about it and refers to the individual´s freedom of choice: “My body, my responsibility”. Furthermore, Bøckman tells that she meets much resistance because of her choice. Bøckman means that she does not see a problem working in a hospital as unvaccinated, because they use face masks, gloves and other measures preventing an infection. Further, she criticizes that the measures focus on the unvaccinated when so many vaccinated get infected. She calls that a segregation that does not relate to the spread pattern. Additionally, she wishes for more discussion about the side effects of the vaccine. Moreover, it is important for her to highlight that the measures should not discriminate the unvaccinated. She concludes by implying that the vaccination debate was socially handled somewhat on the edge and that vaccinating oneself should be voluntary.

Bøckman's rhetoric aims to articulate her reservations about vaccination while challenging the societal discourse around it, advocating for individual freedom of choice and a more nuanced approach towards public health measures. She uses persuasive language to convince the health authorities of her standpoint.

Cato Innerdal (opponent, Municipal Chief Physician in Molde)

Cato Innedal emphasizes the tight staffing situation in health care facilities. They need everyone, including the unvaccinated. He demands concrete guidelines from the health authorities how to handle the unvaccinated staff. Innerdal claims it is unrealistic to ask for replacements of unvaccinated personnel. He would like to know how to ensure safety by using unvaccinated individuals. Today this is a difficult ethical dilemma that the municipalities are left alone with. It results in different practices from municipality to municipality and uncertainty for health care workers and patients.

Overall, Innerdal´s rhetoric can be described as critical and advocating. He addresses the ethical and practical challenges associated with managing vaccination status among healthcare workers.

4.1.5 Debatten from 02.12.2021

Debatten from 2nd of December 2021 discusses the topic of "Viewers´ corona questions" (Norwegian: "Seernes koronaspørsmål"). The episode features Health and Care Minister Ingvild Kjerkol, Assistant Director of the Norwegian Directorate of Health Espen Nakstad, and Director of the Norwegian Institute of Public Health (NIPH) Line Vold. The viewers' questions about COVID-19 are answered by these three. Espen Nakstad (NDH) and Line Vold (NIPH) are identified as the health authorities. The different questioners that are invited to the show are categorized as opponents.

Espen Nakstad (health authority, NDH) and questioners (opponents)

Initially, Nakstad admits that they do not know yet how well the vaccination protects against serious illness from the omicron variant. In South Africa there is evidence that Omicron often spreads among young people, but there is no evidence that it makes people sicker. Here, Nakstad refers to his *expert network* and shows

expert pedagogy by introducing knowledge from other countries and how the health authorities arrived at their current conclusions.

Halvard, the first questioner asks Nakstad how many more hospitalizations are needed, before it comes to a new lockdown. Solvang adds that only 64 Covid-19 patients in Norway are now in intensive care. Nakstad states that the intensive care capacity is usually running on full capacity and 64 patients more mean extra burden for the hospitals. In addition, Covid-19 patients usually spent more time in intensive care and require more resources. Nakstad makes clear that the number of 1200 spots only states how many people can be kept alive for around two days on artificial respiration. Consequently, Nakstad exhibits *expert pedagogy* by explaining how this number originated.

Subsequently, Isabel, a nurse working in a hospital, has a question for the authorities. She is scared about side effects and therefore has not made the decision to get vaccinated yet. She states that although there are over 4 million fully vaccinated in Norway, there has never been more people being on sick leave. She asks why health care workers receive so much pressure to take the vaccine. Nakstad answers that without the vaccine, many more would be infected and hospitalized. With the vaccine the R value lays at around 1 and without it the R value would be between 5 and 10. At this instance, Nakstad employs *expert techne* by sharing insight about the epistemology and methodology of his knowledge. He also mentions that there is no obligation to get the vaccine. However, he experiences a voluntary feeling of obligation as important because many people have been proven to get infected by heath care workers.

Najeb, another viewer, booked a flight ticket to his home country and asks if he should cancel his travels. Nakstad admits that international travels right now are a bit uncertain. Nevertheless, he points out that the risk of getting infected in other countries is not necessarily bigger than taking a bus in Oslo.

Viewer Lasse asks if he can trust the authorities since there were several occasions where the opposite was shown, hinting at the side effects of the Moderna and Astra Zeneca vaccines. Nakstad responds that it highlights safety that the authorities reacted when the side effects became known.

The next guest, Sander, wonders why Norway did not provide other countries in Africa with more vaccines. Nakstad responds that under the pandemic Europe experienced bigger problems than Africa, because Africa has a young population. He also admits that the health authorities would have wished that the vaccination campaign around the world would proceed faster.

Caroline asks the authorities why there has not been more focus on medications that successfully treat Covid-19 patients. Nakstad answers that there are two medications that show an effect, and Norway together with the EU bought some of it. However, he underlines that this is not the solution of all problems, but hopefully improves the situations in hospitals.

Finally, Steffen wonders whether Norway at some point should accept that people get infected by Corona and treat Covid-19 like influenza. Nakstad explains that they can learn from the Spanish flu that after a few years the disease will develop into a seasonal variant. Gradually, also Covid-19 will become a less dangerous seasonal phenomenon. By referring to his knowledge about the Spanish flu and drawing conclusions to the situation at hand, Nakstad is able to exhibit *expert pedagogy* and *expert techne*.

Overall, Nakstad employs a measured and informative rhetoric, combining data-driven explanations with empathetic considerations to address a variety of concerns. On several occasions, he is able to incorporate *expert techne* and *expert pedagogy* to enforce expert ethos.

Line Vold (health authority, NIPH) and questioners (opponents)

Line Vold argues for getting vaccinated, but admits that the new variant, omicron, is leading to more hospitalizations than before. Vold explains that all around the world there is a lot of research happening to answer questions about how infectious omicron is, if it causes more serious illness, and the effect of the vaccine. She openly shares the weaknesses of the knowledge process and therefore shows *expert pedagogy*. She says that the NIPH assumes that the vaccine provides a good protection against serious illness from omicron but does not have the same effect on the spread of infections. Solvang is surprised that this is just an assumption so far. Vold responds that they are open about lacking knowledge on this virus variant.

Hanne, who leads a kindergarten in Oslo, states that many employees get infected although they are vaccinated. She asks what the authorities will do to reduce the sick leaves in kindergartens. Vold responds that measures are being taken in the municipalities to reduce the infection rate. These general measures help to reduce infections also in the kindergartens. Regarding schools regular testing has been the main strategy. Solvang asks Hanne if this plan will work out. Hanne does not seem satisfied with the strategy so far. She replies that also other diseases spread in the kindergarten and that this leads to an increased use of temporary replacements and increased workload.

Karen poses the next viewer´s question. She is worried about her period that stopped after the vaccination. Her doctor confirmed that this is probably a side effect of the Covid-19 vaccine. She explains that those who experienced side effects are asked to wait for the next dose but at the same time authorities demand everyone to get the third dose. She asks why more people are asked to get vaccinated when so many experienced side effects. Line Vold replies that they take all reported side effects very serious and investigate if there might be causal relations between the vaccine and what has been reported. She explains by using *expert pedagogy* that there are also menstrual disorders otherwise in the population that have nothing to do with the vaccine.

Unni, another viewer of the show, asks if she and her husband need to test themselves for Covid-19 before visiting someone. Vold responds that there is no obligation to get tested in that situation. It is just important to get tested and stay at home if they experience symptoms of a respiratory infection.

Cathrine is the next guest in the show. She asks why no one talks about getting the 12- to 17-year-olds fully vaccinated if this could drastically reduce the infections. Vold comments that the NIPH conducts thorough assessments for all age groups before they give out recommendations. She further admits that there are many young people driving the infection and this is also why they already do thorough testing in these groups. However, there is no complete overview in Norway who mostly drives infections because some groups get tested more often than others. Solvang asks if that means that the vaccination is riskier for young people than for other groups. Vold shows *expert techne* by stating that an important

question is what kind of benefit stands in relation to the possibility of side effects for that group. Younger people benefit less for their own protection by getting the vaccine. The questioner Cathrine ends her appearance in the show by attacking NIPH for being slow and explicitly recommending NIPH to read the documents on vaccination recommendation from Sweden. Cathrine tries to establish expert ethos by refering to an *expert network* she is not part of. The Swedish documents state that if the 12- to 17-year-olds get vaccinated, 90 000 infections can be prevented. Here, Cathrine tries to show *expert techne* by validating where her assumptions come from. Vold responds calmly that they are in good contact with the Swedish authorities and other Nordic countries, underlining NIPH´s *expert network*. Cathrine interrupts by presumptuously saying that then they should vaccinate everyone as fast as possible.

Viewer Robert asks why so many are infected now while over 90 percent of inhabitants are vaccinated. Vold counters that they have new variants of the virus and there are little contact reducing measures.

In the following, viewer Marit is wondering if vaccinated people have the same risk of long-term consequences of the Covid-19 infection as the unvaccinated. Line Vold explains that due to her knowledge there is not a higher occurrence of long-term consequences following a Corona infection than with other respiratory illnesses, but that they are still collecting knowledge on that. Again, Vold shows *expert pedagogy* by being clear about the knowledge process and the uncertainties.

Next, Lars asks a question that seems rather ironic: if he could exchange going to a Christmas party for meeting up at work. Vold says that it does not work like that but that they might introduce more home office.

In summary, Line Vold incorporates *expert pedagogy*, transparency, and adaptability to effectively communicate complex information, address concerns, and respond to criticisms, presenting a balanced and informed perspective.

Overall, the rhetoric of the questioners reflects a mix of skepticism, curiosity, frustration, and a desire for more comprehensive information and strategies in dealing with the ongoing pandemic.

4.1.6 Debatten from 07.12.2021

Debatten from 7th of December 2021 with the title "Evens stricter corona measures" (Norwegian: "Enda strengere koronatiltak") deals with introducing measures to prevent the spread of the Covid-19 virus and the overburdening of the health care system. The guests represent on the one hand the health authorities, including Bjørn Guldvog, Director of the Norwegian Directorate of Health, and Camilla Stoltenberg, Director of the Norwegian Institute of Public Health. On the other hand, the opponents are identified as Mette Kalager, a physician and professor in Clinical Effect Research at OUS and UiO, Snorre Valen, Editor of Trønderdebatt, Jan Helge Dale, Municipal Chief Physician in Kinn Municipality, and Stian Sigurdsen, Director of Public Impact at Virke. Norwegian Health Minister Ingvild Kjerkol (Labor party) and Norwegian Finance Minister Trygve Slagsvold Vedum (Center party) do not play a role as opponents and are therefore left out in the following discussion.

Bjørn Guldvog (health authority, NDH)

Bjørn Guldvog, Director of the Norwegian Directorate of Health, is asked by Solvang if the government has followed recommendations from the Norwegian Institute of Public Health (NIPH) and the Directorate of Health (NDH). He largely agrees but mentions some details may not have been followed precisely, particularly regarding specific threshold numbers. When asked which numbers he refers to, Bjørn says, "It's not exact science on our side either."

Further, Guldvog admits that there has been insufficient strengthening of intensive care capacity for many years. He explains that if the maximum capacity is reached over a longer time, other groups of patients then would need to be down prioritized. By explaining the interrelations of the system, Guldvog is establishing expert ethos by highlighting *expert techne*. He is challenged by Mette Kalager, who does not understand the threshold of hospital capacity. She mentions that the Southern and Eastern Norway Regional Health Authority still has more unused capacity, indicating a relation to her *expert network* in this region as physician and university professor. Guldvog admits there is no threshold. At the same time, he does not want the full capacity to be used up, because that would imply a state of war in hospitals. While they handle more patients, it affects other patient groups negatively. Here he shows expert *pedagogy*.

Next, Guldvog agrees with Valen on the need for a long-term plan, saying, "I understand this argument very well," indicating his understanding. However, the omicron variant represents a game changer. Guldvog emphasizes that if they created a plan one month ago, it would not be valid any longer today.

In conclusion, Bjørn Guldvog employs transparency, expert pedagogy, and a willingness to engage with challenges to enhance his ethos. His communication style reflects an understanding of the complexities in the healthcare system and a commitment to conveying information with openness and clarity.

Camilla Stoltenberg (health authority, NIPH)

Camilla Stoltenberg, Director of the Norwegian Institute of Public Health, quotes from an NIPH risk report stating, "It is unlikely that the Omicron variant causes more severe illness in vaccinated individuals," but she also admits uncertainty about it. This shows her use of *expert pedagogy* and *expert techne* because it outlines where and how her knowledge has been derived. Stoltenberg explains that there Covid-19 is a virus that they did not know before. She says it is possible that they might be wrong, and that would be the best-case scenario, but there is a reason to believe that the virus is very contagious and not less pathogenic. Solvang points out *expert pedagogy* by stating that in two years of COVID, the death toll is equivalent to one year of influenza deaths (around 1000 people in Norway). Stoltenberg agrees that the comparison with the influenza virus warrants a discussion on how to handle the Corona virus in the future.

In a nutshell, Camilla Stoltenberg utilizes expert ethos, *pedagogy*, and *techne* by quoting from authoritative sources, admitting uncertainties, providing context about the unknown nature of the virus, and emphasizing the potential impact of the Omicron variant. Her rhetorical strategies contribute to a comprehensive and transparent communication style.

Mette Kalager (opponent, physician)

Mette Kalager, a physician and professor in Clinical Effect Research at OUS and UiO, is uncertain about the threshold numbers. She questions why Norway does not increase hospital capacity instead of introducing restrictions that affect the

whole population. Furthermore, Kalager agrees with Valen on the need for predictability and a long-term plan.

In summary, Mette Kalager employs rhetorical strategies by expressing uncertainty transparently, referencing her connection to regional health authorities, questioning current strategies, and advocating for predictability and a long-term plan. These strategies contribute to her overall expert ethos and engage with the ongoing discussion about managing the healthcare system during the pandemic.

Snorre Valen (opponent, editor Trønderdebatt)

Snorre Valen, Editor of Trønderdebatt, supports the measures as correct and important. However, he notes that many people are experiencing mental health problems and people live from one press conference to another. In addition, jobs are affected by the measures and for example the restaurant and nightlife industry ask for better predictability.

In short, Snorre Valen's rhetoric combines support for measures with a critical acknowledgment of mental health issues, expressing dissatisfaction with the current approach. His focus on the need for predictability in specific industries adds a practical and economic dimension to the discussion, appealing to both empathy and logic in his audience.

Jan Helge Dale (opponent, Municipal Chief Physician in Kinn)

Jan Helge Dale, Municipal Chief Physician in Kinn Municipality, prefers a communication approach that normalizes the virus rather than the acute medical approach currently in use. He is critical about the lockdown and suggests that we need to learn to live with the situation for several years.

In summary, Jan Helge Dale's rhetoric involves a call for a different communication approach, a critique of the lockdown strategy, and a plea for a mindset that accommodates the long-term presence of the virus. These rhetorical choices aim to influence perceptions and attitudes toward the ongoing pandemic.

Stian Sigurdsen (opponent, Virke)

Stian Sigurdsen, Director of Public Impact at Virke, expresses concerns about the uncertainty created by the measures. Many businesses fear bankruptcy, and he is worried about the impact on the business sector.

To conclude, Stian Sigurdsen's rhetoric revolves around expressing concerns, particularly related to the economic impact on businesses. By highlighting these concerns, he aims to generate understanding and support for the challenges faced by the business sector, contributing to the broader conversation on the consequences of the implemented measures.

4.2 Twitter/X sentiment analysis

The following table shows the statistic on all Twitter/X comments that include the relevant hashtags, that were written during the reference period, and that encompass a positive, neutral, or negative sentiment towards the health authorities/opponents as shown in the part about Methodology. More on the theoretical and practical interpretation of the results will be explained in the Discussion part.

participant	no. of comments	postive	neutral	negative
Health authorities GER	346	59 (17%)	56 (16 %)	231 (67%)
Health authorities NOR	23	6 (26%)	3 (13%)	14 (61%)
Opponents GER	199	27 (14%)	16 (8%)	156 (78%)
Opponents NOR	45	23 (51%)	3 (7%)	19 (42%)

Figure 4. Overview Twitter/X sentiment analysis for all shows.

4.2.1 *Lanz from 02.11.2021*

participant	no. of comments	positive	neutral	negative
Flaßpöhler (opponent)	119	1 (1%)	5 (4%)	113 (95%)
Brockmann (health authority)	27	14 (52%)	8 (30%)	5 (18%)

Figure 5. Twitter/X sentiment analysis, Lanz from 02.11.2021.

Dirk Brockmann (health authority, RKI)

27 Twitter/X posts deal with Dirk Brockmann. The sentiment is predominately positive, with 14 posts showing support for him. 8 comments are neutral and 5 comments negative. Brockmann is the guest in the show who gets the most posts with a positive sentiment. The authors praise Brockmann for his calm and objective way of talking. They also appreciate his perspective as natural

scientist and his informative explanations. Other commentators question the validity of his models and him advocating in favor of the vaccination.

Svenja Flaßpöhler (opponent, philosopher)

119 comments on Twitter/X deal with Svenja Flaßpöhler. The tone is overwhelmingly negative, with 113 negative posts, 5 neutral and 1 positive post. Many comments express disagreement with her controverse views on the freedom of choice to take the vaccine or criticize her qualification as philosopher. Some comments also contain sarcastic or mocking tones when referring to her, including offensive expressions and comments about her outer appearance.

4.2.2 Lanz from 16.11.2021

participant	no. of comments	positive	neutral	negative
Mertens (health authority)	189	10 (5%)	30 (16%)	149 (79%)
Berndt (opponent)	28	18 (64%)	6 (22%)	4 (14%)

Figure 6. Twitter/X sentiment analysis, Lanz from 16.11.2021.

Thomas Mertens (health authority, STIKO)

189 comments in this episode show a sentiment towards Thomas Mertens and the STIKO. 149 posts include a negative sentiment towards him and the STIKO. Followed by 30 neutral posts and only 10 positive posts. Several comments express a negative sentiment towards Thomas Mertens, with criticism directed at his handling of the COVID-19 pandemic. Some posts question why the STIKO did not act sooner to address the pandemic, and Mertens is portrayed as being unresponsive or ineffective. Some posts express concerns about Mertens' performance as the head of STIKO. Other commentators also critisize some of the public statements made by Mertens. There is skepticism about the clarity and effectiveness of the communication between STIKO and the public. Many comments criticize him for not correctly citing the number of children who died due to Covid-19. Mertens mistakenly claimed that 35 children were in intensive care during the pandemic. However, Lanz corrected him by saying that 32 children died due to Covid-19. Then Mertens made the controversial statement "32 died, sorry, 32 doesn´t matter" ("32 sind gestorben, entschuldigung, 32, ist egal"). This led to the impression of many commentators that Mertens is insensitive and does not care about the children. Additionally, some authors accuse him of delaying the vaccination for children. The positive comments forgive him about his slip of

tongue and express sympathy for him being not a media and communication expert. In addition, some authors acknowledge him as being factually and technically correct and praise him for finally recommending the Covid-19 vaccine for under 18-year-olds during the show.

Christina Berndt (opponent, SZ journalist)

Christina Berndt is the least discussed person on Twitter/X during this episode of "Lanz". 28 comments mention a sentiment towards her. Berndt is the person receiving the most positive sentiments in the posts regarding this episode. 18 posts show a positive sentiment, 6 a neutral sentiment, and 4 posts a negative sentiment. Many viewers appreciate her statements for being clear, direct, and calm. They see her as a voice of reason in the discussions. Berndt is praised for bringing a rational and well-informed perspective to the conversations. Viewers value her ability to provide evidence-based arguments and facts. Some posts support her for maintaining a balanced and objective approach to the topics discussed on the show. In addition, Berndt is noted for her effective communication skills during the discussion. She is seen as someone who can articulate her thoughts clearly and concisely, making it easier for viewers to understand complex topics. The negative comments view her as annoying and dislike the pitch in her voice.

4.2.3 Lanz from 01.12.2021

Participant	no. of comments	positive	neutral	negative
Terhardt (health authority)	91	16 (18%)	15 (16%)	60 (66%)
Weil (opponent)	52	8 (15%)	5 (10%)	39 (75%)
Brockmann (health authority)	39	19 (49%)	3 (8%)	17 (43%)

Figure 7. Twitter/X sentiment analysis, Lanz from 01.12.2021.

Martin Terhardt (health authority, STIKO)

91 comments deal with Dr. Martin Terhardt and the STIKO. 16 comments are positive towards him and the STIKO, 15 neutral, and 60 negative. Some comments express support for the thorough and cautious approach of the STIKO. Other comments appreciate the volunteer work of STIKO members. Further, the comments defend the need for precise and cautious decision-making by the STIKO. Terhardt gets praised for being able to explain complex contexts easily. However, many comments express frustration with the STIKO's perceived delays in issuing recommendations. A few comments express a desire for more clarity and

understanding regarding the vaccination recommendations. Some comments question the structure and insufficient resources available to the STIKO. One comment raises the issue of the STIKO's perceived lack of consideration for at-risk individuals and long Covid.

Dirk Brockmann (health authority, RKI)

Dirk Brockmann from the RKI is referred to in 39 Twitter/X posts. The sentiment is greatly positive, showing the most positive comments compared to the other guests of this episode. 19 posts indicate a positive sentiment, 3 a neutral sentiment, and 17 a negative sentiment. Some viewers express appreciation for Brockmann, highlighting his valuable expertise and scientific insights. They view him as a credible source and trust his explanations on vaccine-related matters. However, he gets also criticized for being the "modeler" or analyst of the pandemic, a role that some viewers do not trust him with. Some comments question the data he presents during the show or accuse him of acting on behalf of the pharma organizations. They also dislike him for giving statements outside of his field of core competency.

Stephan Weil (opponent, SPD politician)

Minister president of Lower Saxony and social democratic party member, Stephan Weil, is subject to 52 posts on Twitter/X. 8 comments show a positive sentiment, 5 a neutral sentiment, and 38 comments a negative sentiment. Many of the comments express frustration and criticism towards Weil's statements and perceived lack of expertise in discussing vaccination-related topics. Viewers suggest that Mr. Weil may be making unfounded or misleading claims and argue that his statements are not based on scientific evidence. The positive comments related to Weil praise him for criticizing the STIKO´s delay in vaccine recommendations and his clear and informed statements.

4.2.4 Debatten from 09.11.2021

participant	no. of comments	positive	neutral	negative
Bøckman (opponent)	13	2 (5%)	0 (0%)	11 (85%)
Guldvog (health authority)	6	0 (0%)	2 (33%)	4 (67%)
Stoltenberg (health authority)	1	0 (0%)	0 (0%)	1 (100%)
Innerdal (opponent)	1	1 (100%)	0 (0%)	0 (0%)

Figure 8. Twitter/X sentiment analysis, Debatten from 09.11.2021.

Bjørn Guldvog (health authority, NDH)

Bjørn Guldvog, leader of the Norwegian Directorate of Health, is being discussed in 6 posts, whereof 2 are neutral and 4 negative. The negative posts suggest a need for more transparency and discussion regarding the effectiveness and potential side effects of vaccines. Furthermore, it is criticized that Guldvog is repeatedly talking about the weaknesses of the vaccine, which undermine his strong defense of it. The posts imply that Guldvog's approach may not be effective in persuading others about the vaccine's merits or safety. One post expresses frustration with the NDH for allowing unvaccinated nurses to care for individuals with compromised immune systems. The post also criticizes the idea of shifting responsibility onto municipalities, describing it as a form of avoiding accountability. One post also suggests that the NDH should talk more about alternative treatments and that the current approach just focusing on the vaccine may not be the most effective. One neutral post mentions that it might be a good idea for all healthcare personnel, whether vaccinated or unvaccinated, to use masks and gloves in close contact with patients. Another comment demands direct involvement of employers in conveying vaccination information to Polish individuals in Norway. In the author´s opinion this might be more effective than solely relying on NDH´s advertising efforts

Camilla Stoltenberg (health authority, NIPH)

Camilla Stoltenberg and the NIPH is being discussed in 1 Twitter/X post. The comment shows a negative sentiment. The post appears to be skeptical of the focus on mRNA vaccines and suggests that it is time to discuss alternative treatments like Ivermectin and Hydroxychloroquine. The post implies that the emphasis on mRNA vaccines may have negative consequences for the credibility of organizations like the NIPH.

Dina Benedicte Bøckman (opponent, nurse)

13 Twitter/X posts deal with the specialized nurse Dina Benedicte Bøckman. 11 comments include a negative sentiment and 2 a positive sentiment. Many posts show disapproval towards her as someone working in healthcare who refuses to get vaccinated. The comments underline that the choice not to get vaccinated is not a private matter but one that affects the whole society. They accuse her of endangering people at risk for severe consequences of the Covid-19 infection.

The comments also question her knowledge and some request to dismiss her from her job as a nurse. The two positive comments praise her for her courage to participate in the debate. One post also views fully vaccinated people infecting others as a bigger issue than those that are unvaccinated, because it may be harder to detect the infection.

Cato Innerdal (opponent, Municipal Chief Physician in Molde)

One Twitter/X comment deals with Cato Innerdal, Municipal Chief Physician in Molde. The comment shows a positive sentiment towards him. Innerdal is described as "fornuftig" (sensible), and the post seems to applaud his response to a question about what would happen if unvaccinated healthcare workers were removed from duty. Innerdal emphasizes the shortage of healthcare workers in Norway. This comment underlines the challenges associated with removing unvaccinated healthcare workers from their positions.

4.2.5 Debatten from 02.12.2021

participant	no. of comments	positive	neutral	negative
Questioners (opponents)	5	0 (0%)	0 (0%)	5 (100%)
Nakstad (health authority)	3	1 (33,33%)	1 (33,33%)	1 (33,33%)
Vold (health authority)	0	0 (0%)	0 (0%)	0 (0%)

Figure 9. Twitter/X sentiment analysis, Debatten from 02.12.2021.

Espen Rostrup Nakstad (health authority, NDH)

The sentiment towards Espen Nakstad is mixed. 3 tweets mention him whereof 1 is positive, 1 neutral and 1 negative. The positive post praises Nakstad for being clear about the vaccination of healthcare personnel and taking a strong stance on this issue in the debate. The neutral comment references a statement by Nakstad, who suggests that there is not much extra capacity for ICU beds under normal circumstances. The question about what would happen in the event of larger accidents or disasters indicates a concern about the ability of the healthcare system to handle unexpected surges in patients, which could potentially strain resources and impact patient care. The negative comment appears to be critical of an assertion that Nakstad made, saying that all those who were infected at the Christmas party experienced severe illness. It suggests skepticism about the statement’s accuracy.

Line Vold (health authority, NIPH)

No tweets include a sentiment towards Line Vold from NIPH.

Questioners (opponents, different professions)

5 comments count a sentiment towards the questioners from the show´s audience on Twitter/X. The sentiment towards the questioners is entirely negative. Two comments are critical about one of the viewers´ questions about how the health authorities and the government can defend vaccinating healthy young people with the third dose if other countries do not even have enough vaccines for the first dose. The commentators say that western countries are not to blame for low vaccination rates in Africa, but they suggest it might be refusal to take the vaccine there. One comment critisize that many of the questioners express certainty in their premises and try to explain to professionals how things work. This implies a level of skepticism or frustration about the way questions are formulated. Another commentator highlights that life for people with chronic illness and daily pain is on hold and that questioners disregard their situation. It critically asks if questioners mean that life of people with chronic illness should stop because the health system has no solution for them. Moreover, two comments criticize the nurse in the show for not getting vaccinated, indicating that her education was wasted ("bortkastet") and for not relying on the medical profession her job is built on.

4.2.6 Debatten from 07.12.2021

participant	no. of comments	positive	neutral	negative
Kalager (opponent)	17	13 (76%)	2 (12%)	2 (12%)
Valen (opponent)	8	6 (75%)	1 (12,5%)	1 (12,5%)
Guldvog (health authority)	8	2 (25%)	0 (0%)	6 (75%)
Stoltenberg (health authority)	5	3 (60%)	0 (0%)	2 (40%)
Dale (opponent)	1	1 (100%)	0 (0%)	0 (0%)
Sigurdsen (opponent)	0	0 (0%)	0 (0%)	0 (0%)

Figure 10. Twitter/X sentiment analysis, Debatten from 07.12.2021.

Bjørn Guldvog (health authority, NDH)

8 comments refer to Bjørn Guldvog during the discussion on the show. The sentiment in the posts is generally negative. 6 comments highlight a negative sentiment and 2 a positive sentiment. In one of the positive posts, Guldvog is described as "flink" (skillful or competent) and "koselig" (friendly or pleasant), indicating a favorable view of his demeanor. Another post appreciates his

contributions in the debate. In the negative posts, one raises questions about the healthcare capacity, suggesting that Bjørn Guldvog's responses may not adequately address the issue. Another post also expresses frustration with his responses provided in the debate, implying dissatisfaction with the healthcare system's performance.

Camilla Stoltenberg (health authority, NIPH)

Camilla Stoltenberg is referred to in 5 posts. The sentiment is mixed but slightly more positive. While 3 posts show a positive sentiment, another 2 posts show a negative sentiment. Some tweets support her statements while others criticize her for not adequately responding to questions by other guests in the show.

Mette Kalager (opponent, physician)

17 tweets were related to Mette Kalager on the day of the show. 13 indicate a positive sentiment, 2 a neutral sentiment, and another 2 a negative sentiment. Therefore, the sentiment towards Kalager is generally supportive. The authors express appreciation for her contributions and her critical questioning of important issues regarding the capacity of hospitals in the debate. They regard her as a sensible and valuable participant in the discussion, despite not always receiving satisfactory answers to her questions.

Snorre Valen (opponent, editor Trønderdebatt)

Snorre Valen, editor of Trønderdebatt, received in total 8 comments about him on the show. The authors of the tweets are mostly positive about him. 6 posts include a positive sentiment, 1 neutral sentiment, and 1 negative sentiment. Multiple posts express positive sentiments towards Snorre Valen, emphasizing that they agree with him and appreciate his contributions to the debate. Furthermore, the tweets praise him for asking critical questions and see him as a valuable and rational voice in the discussion. The more neutral or critical comments refer to his looks and hairstyle.

Jan Helge Dale (opponent, Municipal Chief Physician in Kinn)

One comment mentions Jan Helge Dale, Municipal Chief Physician in Kinn Municipality, including a positive sentiment towards him. The author of this post is

thanking him for posing critical questions although receiving vague answers from the authorities.

Stian Sigurdsen (opponent, Virke)

No tweets comment on Stian Sigurdsen from Virke.

5 Discussion

5.1 Theoretical implications

H1. *The experts from the health authorities use more informative than persuasive rhetorical strategies than the opponents.*

Hypothesis 1 can be accepted. The qualitative evaluation of the rhetoric in the TV shows emphasizes that in Germany and Norway, the experts from the health authorities tend to employ informative rather than persuasive rhetorical strategies, whereas the opponents follow a more persuasive approach to communicate their concerns.

The health authorities, frequently provide information about the virus, its variants, and the effectiveness of vaccines. They cite data, research findings, and reports from internal and external sources. The Norwegian authorities especially emphasize uncertainty and admit when certain information is not exact, showcasing transparency and honesty about the limitations of their knowledge. This admission of uncertainty is a characteristic feature of informative discourse rather than persuasive strategies.

They communicate a systematic approach to understanding and responding to the pandemic. While the health authorities express the importance of vaccination and adherence to measures, their emphasis is more on providing information rather than employing overt persuasive techniques. In contrast, opponents use more persuasive strategies by focusing on personal choice, expressing skepticism about vaccines, and questioning the speed and effectiveness of measures.

H2. *Health authorities in both countries are better in establishing expert ethos and drawing on public trust than their opponents in the TV shows.*

Hypothesis 2 is accepted. The health authorities in both countries are able to establish expert ethos to a greater extent than opponents. The health authorities engage in *expert pedagogy*, explaining complex concepts, and outlining the process of knowledge creation. This includes discussions on the mRNA vaccine, the nature of the virus, and the challenges in predicting the virus's behavior. *Expert techne* is evident in their discussions about epidemiological methods, risk assessments, and the intricacies of vaccine effectiveness. They quote relevant studies in their field of expertise and substantiate their claims with statistics showcasing for example infection or hospitalization rates. They are also integrated in an international *expert network* which they refer to in the debates. Studies from Israel, the USA or the European Medicines Agency are referred to by the STIKO. In additon, Camilla Stoltenberg highlights that the NIPH is in close exchange with the Swedish authorities.

The health authorities consistently explain the scientific basis of their decisions. They engage in *expert pedagogy*, providing detailed information about the virus, vaccines, and epidemiological methods. Health authorities highlight the complexities of decision-making processes, risk assessments, and the need for nuanced approaches. This use of *expert techne* contributes to the establishment of their expertise. There is a noticeable effort by health authorities to be transparent about uncertainties, admit when information is not exact, and openly discuss challenges. This honesty contributes to building trust as it shows a commitment to truthfulness. Health authorities are involved in crisis management, providing explanations for measures and emphasizing the need for a dynamic response to the evolving situation. This crisis management role contributes to their credibility and the perception of their expertise in handling the pandemic. The informative and transparent communication style of health authorities, coupled with their role in crisis management, likely contributes to building public trust. Public health messaging often centers around the recommendations of health authorities.

Some opponents, express skepticism and concerns, but their arguments may lack the same level of transparency and detailed information, which could impact their establishment of expert ethos. While opponents may voice concerns and alternative views, the degree to which they can establish trust might vary. Skepticism toward vaccines and measures could, in some cases, be less aligned with the prevailing public health narrative.

In summary, the health authorities in the TV shows appear to prioritize establishing expert ethos, transparency, and credibility, potentially contributing to public trust. However, it is essential to note that public reactions may vary, and individual perspectives on trust can be influenced by various factors like for instance the media image, the contact to representatives of the health care system, and the quality of the health care system itself (van der Schee, Braun, Calnan, Schnee & Groenewegen).

H3. *Twitter/X reactions are more negative towards the health authorities in Germany than in Norway.*

According to the exact Fisher test Hypothesis 3 cannot be approved, because the result lacks statistical significance. The p-value=0,201 is above the critical value of 0,05 considering a 95% confidence interval. This is most likely due to the small sample size in the Norwegian sample. However, a simple comparison of the percentages shows a clear tendency pointing at that Twitter/X reactions towards the health authorities in Germany are more negative than in Norway. The proportion of negative sentiments towards the health authorities is higher in Germany than in Norway. Building on that, future studies can aim at including more data in the Norwegian sample to prove this hypothesis.

The STIKO members mainly receive negative reactions for their lack of resources, the slowness of their reactions, and shortcomings in communication, while the representative of the RKI, Dirk Brockman, is received more positively by the audience. This could hint at more professional communication practices at the full-time working RKI than the voluntary working STIKO. Furthermore, this finding seems to be in line with the attributed importance and the description of crisis communication practices that are outlined in the crisis plan of the RKI (RKI, 2017).

Moreover, the Norwegian Ministry of Health and Care Services acknowledges the importance of risk and crisis communication in their crisis plan. This is reflected by the well-coordinated statements of the Norwegian health authorities´ representatives that come without any contradictions. The crisis plan of the Norwegian authorities further outlines the importance of the coordination of communication between the affected departments and divides responsibilities very

clearly (Norwegian Ministry of Health and Care Services, 2020). In turn, a clear and coordinated communication can influence the trust of the audience in the authorities (König & Wiedmann, 2015; Yang, Kang & Cha, 2015).

H4. *Opponents get more positive reactions on Twitter/X in Germany than in Norway.*

Hypothesis 4 is rejected. Based on the analysis the opposite holds true. The finding is also statistically significant on a 95% level of confidence (p=2,33473E-07). The sentiment in the Twitter/X comments towards the opponents was significantly more positive in Norway than in Germany. The posts suggest that commentators in Norway especially valued critical questions towards the health authorities. Likewise, critical questions were also welcomed among commentators in Germany. It becomes clear that the type of sentiment towards the opponents depends on their type of rhetoric and degree of vaccine skepticism. Opponents that were able to draw on *expert techne* or *expert pedagogy*, like the science journalist Christina Berndt in the German sample or the physician and university professor Mette Kalager in the Norwegian sample, were more positively received by the audience. However, opponents that were skeptical about the vaccine like for instance Svenja Flaßpöhler in the German show, or the nurse Dina Benedicte Bøckman in the Norwegian show, were targeted overwhelmingly negative.

H5. *Health authorities in both countries receive more positive reactions on Twitter/X compared to their opponents.*

Hypothesis 5 is rejected. While in Germany the health authorities proportionally received slightly more positive sentiments than their opponents, the findings are not statistically significant using a 95% confidence interval (p=0,885).

In Norway the hypothesis is rejected because instead of the health authorities, as previously assumed, the opponents got significantly more positive reactions compared to the health authorities. The findings are statistically significant based on a 95% confidence interval (p=0,0418).

This finding could be explained by the section to the previous hypotheses. Critical questions and some well-informed guests in the Norwegian talk shows were

highly appreciated. Furthermore, the tone in the German Twitter/X posts was generally more negative to both, health authorities and opponents.

5.2 Practical Implications

Based on the sentiments expressed in the Twitter/X posts, it appears that commentators of the two talk shows generally appreciate a rhetorical style that is characterized by clarity, rationality, objectivity, effective communication, and expertise to engage in meaningful and informative discussions.

- First, viewers value the guests who can provide well-reasoned, evidence-based insights on a variety of topics.
- Second, commentators on Twitter/X value straightforward and clear communication. They prefer speakers who can convey their points without ambiguity or excessive use of jargon.
- Third, viewers tend to favor speakers who rely on data, facts, and expert opinions to support their arguments. The concept of expert ethos plays a significant role in the view of the commentators, contributing to their perception of trustworthiness, credibility, and effectiveness of the experts featured on the show. Expert ethos refers to the perceived character, authority, and moral credibility of individuals recognized as experts in their respective fields. Commentators often assess experts' ethos to determine the trustworthiness of their statements. Experts with a strong ethos, which includes a history of accurate predictions, honesty, and integrity, are more likely to be trusted and their opinions considered valuable. The commentators of the shows appreciate evidence-based discussions rather than emotional or anecdotal claims.
- Fourth, the audience values speakers who can present multiple perspectives on an issue without taking an extreme or biased stance. They appreciate a balanced and objective approach to complex topics.
- Fifth, guests who can articulate their thoughts clearly and concisely are generally well-received. The ability to make complex topics more accessible and understandable is a plus.

- Sixth, commentators often respect and trust speakers who are able to demonstrate expertise in the subject matter being discussed. This is particularly relevant when addressing complex topics like the COVID-19 infection and vaccine-related topics.

Another central point in the discussion has been that the STIKO consists of 18 people voluntarily working in their free time on the recommendations for vaccination. During the discussions in the shows, it becomes clear that the system of the STIKO is not made for working under time-pressure. Moreover, they are not trained in crisis communication and even give out information that conflicts with the statements of the German Ministry of Health. The Twitter/X comments as well as statements from another health authority representative, Dirk Brockmann (RKI), during the discussion, highlight not only the STIKO's resource constraints but also their shortcomings in effective communication. Consequently, it would be advisable to establish more full-time positions working on the vaccination recommendations in addition to professional help with crisis communication.

In addition, in both countries the centralization of decision-making power played an important role during the pandemic according to the talk show participants. While the crisis plan of the RKI outlines that major national crises, such as the Covid-19 pandemic, are handled centrally with nationwide uniform measures, opponents in the show argue that in Norway, municipalities struggled to set up their own measures and called for more centralized guidelines.

5.3 Limitations

The sentiment analysis has been conducted with the help of ChatGPT. Although this AI system seems very advanced, there can still be misinterpretations and nuances in the text only a human can catch as of today. Therefore, it is advisable to always add a human review to the analysis as it has been applied in this research project.

While AI, like ChatGPT, has advantages in sentiment analysis, limitations include struggles with contextual understanding, potential misinterpretations of sarcasm or irony, and difficulty capturing subtle variations in sentiment. Ethical

concerns arise with "black box" decision-making in AI models and biases in training data influencing results (Kalla & Smith, 2023; Rimban, 2023).

Furthermore, Twitter/X comments' reliability in representing the general population is questionable. Germany had 7.75 million Twitter/X users (9.2% of the population) in early 2022 (Kemp, 2022a), and Norway had 818.9 thousand users (14.9% of the population) (Kemp, 2022b). The social media market share between November and December 2021 for Twitter/X in Germany and Norway was 5.91% and 6.22%, respectively (Statcounter Global Stats, 2023a, 2023b). Future research, especially in Norway, should test hypotheses on larger samples.

Social media comments, while offering valuable insights, represent a limited and self-selected sample. Twitter users often differ significantly from the general population in demographics and political dimensions (Mellon & Prosser, 2017). A German study notes differences in personality among Twitter users (Hölig, 2018). To comprehensively understand a show's reception, further research should employ diverse methods like surveys, focus groups, or content analysis across various media sources and platforms (Kjeldsen et al., 2021).

5.4 Conclusion and Outlook

In conclusion, the study indicates that health authorities employ more informative rhetorical strategies, while opponents lean towards persuasive approaches in both Germany and Norway. In addition, health authorities in both countries establish expert ethos and build on public trust more effectively than their opponents. A clear tendency suggests more negative Twitter/X reactions towards health authorities in Germany than in Norway. The statistical significance of this claim needs further study in a bigger sample. Further, opponents receive more positive reactions in Norway than in Germany. Finally, the sentiment towards health authorities is not being significantly more positive than opponents in Germany and in Norway opponents are more positively received compared to the health authorities.

Practical implications highlight audience preferences for clarity, rationality, objectivity, effective communication, and expertise. The importance of expert ethos is emphasized, along with the need for well-reasoned, evidence-based discussions. The study suggests that the STIKO's resource constraints and shortcomings in

effective communication could be addressed by establishing more full-time positions for vaccination recommendations and professional help with crisis communication. According to this study the coordination between the German Ministry of Health, the Robert Koch Institute, and the STIKO shows room for improvement and should be considered in their future organizational crisis preparedness and resource planning. Future research should explore larger samples and employ diverse methods to comprehensively understand public sentiments across various media sources and platforms.

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Appendix

Appendix 1: Objectives of pandemic planning and examples of important measures in different epidemiological situations in Germany (English translation based on RKI, 2017, pp. 8-9).

Epidemiological situation	**Goals**	**Examples Measures**
Interpandemic period	Planning/Preparedness	• Development of pandemic plans at all levels (hospitals, critical infrastructures, etc.) • Possibly reserving, purchasing, storing medications, vaccines, materials • Establishing diagnostics • Establishing communication channels • Arranging cost coverage • Defining responsibilities
	Risk assessment/ early detection	• Surveillance (human/animal) • Deliberate monitoring of critical virus subtypes (H7N9, etc.) • Risk analysis
	Public awareness/Involvement of key stakeholders	• Improving vaccine willingness • Improving vaccination rates for seasonal flu, especially in high-risk groups • Enhancing knowledge about personal hygiene • Developing and disseminating informational materials to educate and provide basic knowledge for stakeholders, high-risk groups, and the general population • Early involvement of the press and media
Initial individual cases and the onset of transmission in the population	Assessment of the situation	• Intensified monitoring and risk assessment
Continued transmission in the population	Assessment of the situation	• Activation of crisis structures • Monitoring and risk assessment Informing the population
	Influence on the spread dynamics	• Behavioral measures (cough etiquette, hand hygiene) • Situation-specific contact-reducing measures (e.g., exclusion of the sick from communal facilities, isolation of the sick, medical isolation, admission restrictions in mass accommodations, closure of communal facilities, event bans)
	Special measures	• Contact tracing • Identification of particularly affected groups • Procurement of vaccines • Vaccinations: Organization of logistics (special structure) and implementation (within the structures of the regular system and public health service) • Possibly pharmacological prophylaxis/early treatment • Treatment with antiviral drugs • Swift medical care for the sick

	Mitigation of consequences Informing decision-makers and the population	• Creating additional treatment capacities through organizational measures • Neighborhood assistance • Regular communication with decision-makers and mass media • Informing the population about personal hygiene measures, vaccinations, behavioral recommendations, and the current situation
Transition to an interpandemic period	Knowledge gain and optimization	• Analysis of the pandemic events • Evaluation of the implemented measures and established structures • Optimization of pandemic planning and preparation for future events

Appendix 2: Schematic overview of responsibilities in infection control at the local and national levels (English translation based on Ministry of Health and Care Services, 2020, p. 11).

Step	**Description**	**Responsibility in the municipality**	**Responsibility at the regional, national, and country level**
1. Surveillance, reporting, and sharing of necessary information	Through the collection and analysis of various data on behavior and illness, it is possible to track trends and detect events early. By reporting from municipalities, county governors, regional health trusts, the Norwegian Medicines Agency, and other sectors, a comprehensive situational overview is established, providing a basis for assessing the epidemiological development in conjunction with capacity assessments and evaluations of the need for measures.	Municipality (§ 7-1)	NIPH (§ 7-9) NDH (§ 7-10)
2. Notification and collaboration	Incidents shall be reported to the Norwegian Institute of Public Health (NIPH) so that collaboration can commence between the affected municipalities and NIPH. NIPH shall provide the Directorate of Health with professional advice and immediately notify the Directorate of Health of serious outbreaks.	Municipality (§§ 2-3, 7- 1)	NIPH (§§ 2-3, 7-9) NDH (§ 7-10, MSIS-forskriften)
3. Investigation	Incidents shall be investigated to describe details and understand causes.	Municipal Medical Officer (§ 7-2)	NIPH (§ 7-9)
4. Risk assessment	Incidents shall be analyzed to assess the likelihood of deterioration and the consequences thereof.	Municipality (§ 7-1)	NIPH (§ 7-9) NDH (§7-10)

5. Assessment of measures	It should be assessed which measures should be implemented against the evaluated threat and at what level measures should be implemented following a comprehensive assessment.	Municipality (§ 7-1)	NIPH (§ 7-9) NDH(§ 7-10)
6. Management (measures)	Measures are implemented to bring the incident under control while simultaneously communicating with the public about the risk.	Municipality (§§ 7-1, 4- 1) after advice from Municipal Medical Officer (§ 7-2)	NIPH (§ 7-9, MSIS § 3-3), NDH (§§ 7-10, 4-1) after advice from NIPH, and based on a comprehensive and extended assessment of the situational overview
7. Follow-up	After adjusting or reintroducing measures, the effect must be assessed through monitoring, see section 1 above.	Municipal Medical Officer (§ 7-2)	NIPH (§ 7-9) NDH (§7-10)
8. Evaluation	After the incident, the management must be evaluated, and the results reported so that other municipalities can learn.	Municipal Medical Officer (§ 7-2)	NIPH (§ 7-9) NDH (§7-10)