

Chiara Valentini, Mark Badham & Markus Mykkänen

# COVID-19 VOICES IN FINNISH NEWS MEDIA IN THE GLOBAL CONTEXT

A Comparative Study of News Media's Roles in Pandemic  
Communications and Public Perceptions across Six Countries

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# Contents

	Contents .....	3
	Abstract.....	4
	Tiivistelmä.....	5
1	Project information.....	6
2	Project overview .....	7
	Main research questions and theoretical approach.....	9
	Methodology .....	11
	Quantitative data: Survey of the population and analysis of public opinions.....	11
	Quantitative/qualitative data: analysis of news articles .....	12
3	Main findings .....	15
	Finnish and Swedish news media coverage of the pandemic: crisis issues, social actors and media preferences.....	15
	Trust effects on health communication perceptions.....	23
	Information consumption patterns of individuals .....	23
	Public perceptions of news credibility and quality.....	24
	Effects of health crisis information on people’s well-being .....	28
4	Significance of the project outcomes .....	30
	Final event.....	31
5	Project outputs.....	34
	Scientific publications .....	34
	Presentations in academic conferences .....	35
	Media outreach .....	37
	Dissemination through professional presentations .....	38
	References.....	39

## **Abstract**

This project investigated issues pertaining to COVID-19 related communications by different social actors, such as governments, news media, health authorities, experts, business organizations, and their impact on the general public's attitudes and behaviours. It sheds some light into the news media's role during pandemics, thus exploring the extent by which news media contributed to specific understandings of the COVID-19 pandemic by their journalistic choices of issues, tone, and crisis narratives. This project is comparative in nature, including data on public perceptions across six countries (Australia, Finland, Italy, South Korea, Sweden, and USA) and news media analyses of two countries' main news outlets (Finland and Sweden).

## Tiivistelmä

Tämä projekti tutki eri COVID-19-pandemiaan yhteiskunnallisissa rooleissa toimivien tahojen, kuten hallituksen, uutismedioiden, terveysviranomaisten, asiantuntijoiden, liike-elämän organisaatioiden, vaikutusta yleisön asenteisiin ja käyttäytymiseen. Projektin tutkimusraportti tuo esiin eri näkökulmia liittyen uutismedioiden rooliin pandemian aikana, esitellen muun muassa, miten uutismedioiden sisällöt ja journalistiset valinnat johtivat COVID-19-pandemian aihevalintaa, uutisoinnin sävyä sekä kriisikerrontaa. Tutkimusprojekti on ollut luonteeltaan vertaileva. Projektin raportti sisältää tietoa vertailevan tutkimuksen havainnoista kuudessa eri maassa (Australia, Suomi, Italia, Etelä-Korea, Ruotsi ja USA) sekä uutismedioiden analyyssejä kahden maan pääuutislähteistä (Suomi ja Ruotsi).

# 1 PROJECT INFORMATION

*PROJECT NAME:* COVID-19 Voices in Finnish News Media in the Global Context: A Comparative Study of News Media's Roles in Pandemic Communications and Public Perceptions across Six Countries

*FOUNDING INSTITUTION:* Helsingin Sanomat Foundation

*YEAR OF ISSUE:* 2020

*GRANT AMOUNT:* 150,000 euros

*PROJECT STARTED:* 01 January 2021

*PROJECT ENDED:* 30 September 2023

*PRINCIPAL INVESTIGATOR/PROJECT MANAGER:* Professor Chiara Valentini, JSBE, University of Jyväskylä

*PROJECT RESEARCHERS DIRECTLY INVOLVED (Alphabetical order)*

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## 2 PROJECT OVERVIEW

When there is a pandemic, such as COVID-19, which can spread quickly from human to human, consequences for public health and societies are enormous. The COVID-19 disease is one of the first long-lasting pandemics ever experienced which has had several implications for societies, business, and authorities. National governments, including their political leaders, faced many difficult challenges when trying to prevent the spread of the virus within and across national boundaries, including how to keep public trust in them, in the media, and in vaccines. Communication plays an important role in risk and crisis management (Jin et al., 2019; Coombs & Holladay, 2012) and, despite the increasing role of social media and other digital media in today's information ecosystem, news media still retain a central role in providing accurate health and risk information. News media (Hanitzsch et al., 2011; Suiter & Fletcher, 2020) as channels of health information have been historically found to be very important in health and risk prevention.

Taking the point of departure of liberal and democratic societies, in which news media play an important watchdog role in assessing and evaluating government decision-making and their preparedness and responses during crises such as those caused by global pandemics like COVID-19, this project investigated the important role of news media as intermediary stakeholder of governments and other social actors during the pandemic.

Specifically, this project investigated several issues pertaining to COVID-19 related communications by different social actors, such as governments, news media, health authorities, experts, business organizations, and their impact on the general public's attitudes and behaviours. It sheds some light into the news media's role during pandemics, thus exploring the extent by which news media contributed to specific understandings of the COVID-19 pandemic by their journalistic choices of issues, tone, and crisis narratives. News media often report international issues according to national viewpoints (Deuze, 2002; Hafez, 2007) which may be a reason



why publics across multiple countries perceive global crises and respond to pandemics like COVID-19 differently. Building on this observation, this project sought to investigate the cultural nuances in public perceptions of the role of news media in communicating COVID-19 emergency and preparing the publics to better handle the spreading of the infectious disease.

The project was thus comparative in nature. It explored the existence and impact of roles of news media in Finland during the COVID-19 pandemic and people's perceptions of COVID-19 related information with those of five other countries, such as Australia, Italy, South Korea, Sweden, and USA. These countries were chosen as they have very different media systems. A media system can be defined as "the actual set of mass media in a given national society" (McQuail, 2010, p. 220) and is made up of "an interplay between different forms of communications, each one with its own logic, its own traditions and set of values and interests inscribed in their institutional organizations" (Castells, 2006, p.17). According to media systems theory, Finland and Sweden represent the Democratic Corporatist model, whereas Italy represents the Mediterranean model. The USA and Australia are identified as following the Liberal North Atlantic model, and South Korea fits the Eastern model (Hallin & Mancini, 2004; Blum, 2005). Furthermore, these countries have experienced different levels of the pandemic and their governments implemented different restrictions with varying results in terms of containment of the pandemic. Media systems theory explains news media's preferences for frames and crisis topics and their treatment. Choosing countries with different media systems allowed us to check for possible differences in news reporting as well as differences in the media's effects on individuals.

The news media's role during a national and global crisis, such as the COVID-19 pandemic, is of paramount importance to health risk communicators (Coombs & Holladay, 2012). The media influence people's attitudes and actual and intended behaviours (Carroll & McCombs, 2003; Deephouse & Heugens, 2009). Thus, they influence whether or not the public follows government pandemic guidelines, and trust media reports, scientific studies, or government decisions about health diseases. This information is not just disseminated through news media but also via social media channels and via friends and family members. Therefore, this project also investigated the co-occurring role of other sources of information which now populate the modern information media ecosystem (Blair, 2011).

The decline in news media trust (Newman et al., 2019) and credibility (Kohring & Matthes, 2007) have brought to attention other sources of health and risk information which, at times, compete for public attention with traditional news

media. These sources can facilitate and/or hinder important, life-saving information particularly during pandemics. These different sources can amplify government recommendations and health protective information or else become the vehicle for misinformation. The diversity of contents, opinions, and sources are also critical for the public to make an informed decision during a pandemic and judge the status of democratic freedom that is present in their own societies. Therefore, studying news media as well as other sources of health information was necessary to better understand the public's knowledge of the COVID-19 disease, how it spreads and how to protect themselves against it. Such knowledge is the cornerstone of people's behavioral intentions to follow preventive recommendations.

Traditionally, news media in Finland, as well as in other western democratic societies, have strongly defended their independence from external influences (Gans, 1979; Shoemaker & Reese, 1996), such as from government and political leaders. The empirical evidence we gathered showed how, during the COVID-19 pandemic, Finnish media played more of a collaborative role (Christians et al., 2009), working closely with the government to ensure news reports reflect government narratives and risk information plans. This was, however, not the case in other countries.

Another important aspect investigated in this project is related to the effects of COVID-19 information on the general public (e.g., attitudes, behaviours, and overall well-being) and their perception of information quality concerning a disease that was little known in early 2020. Early studies show that different publics tend to perceive, interpret, and respond to the same crisis differently (Kim, 2015). Therefore, effective crisis communication – i.e., communications that help secure safety and protection in society during critical situations – from organizations and public institutions, requires an understanding of how crisis information is processed, transmitted, and acted upon by different publics (Austin & Jin, 2016; Jin, 2010; Liu, Jin, Austin, & Janoske, 2012). In this project, several papers and studies were conducted to explore the effects of health crisis communication on people in six countries with the intent to better understand those elements that maximize the effectiveness of authorities' communications.

## **Main research questions and theoretical approach**

The project investigated the type of COVID-19 communication that circulated in news media since the beginning of the pandemic until fall 2022, as well as the public perceptions of social actors, the quality of COVID-19 information they were

exposed to, and their consequent willingness to comply with different preventive behaviours.

The project addressed the following macro research questions (RQs):

RQ1: What COVID-19 crisis issues and narratives emerged in news media discussions and which pandemic social actors drove those issues and narratives?

- 1.2 Which voices dominated, and which voices were marginalized in news media discussions about COVID-19?
- 1.3 Were there any similarities or differences between Finland and other countries?

RQ2: How did citizens perceive and respond to COVID-19 related information received during the pandemic?

- 2.1 How much did citizens trust different crisis narratives used by news media and other social actors?
- 2.2 How did citizens perceive the information quality and evaluate the media's bias and tone in COVID-19 media reports?
- 2.3 Were there any similarities or differences between Finland and other countries?

RQ3: What different attitudinal and behavioral effects resulted from COVID-19 information consumption across information sources and health recommendations?

- 3.1 To what extent did COVID-19 information consumption increase/decrease people's knowledge on COVID-19 disease, their level of risk uncertainty and willingness to follow government recommendations?
- 3.2 To what extent did COVID-19 information consumption increase/decrease vaccination intentions and health preventive behavioral intentions? Were there any similarities or differences between Finland and other countries?
- 3.3 To what extent did COVID-19 information consumption increase/decrease pandemic fatigue and/or message fatigue? Were there any similarities or differences between Finland and other countries?

Overall, the project is grounded in theoretical foundations from media sociology and communication science to study media role and health communication, crisis and risk communication and behavioral science literature to study public opinions, attitudes, and behavioral intentions. Methodologically, this project includes

qualitative (content analysis) (Neuendorf, 2002) and quantitative methods (surveys and computational analyses via Natural Language Processing). For the latter, the project developed an algorithm to analyse textual data (news media articles).

The project outcomes offer important theoretical and practical knowledge to better understand the role of news media and other social actors in this process of informing and instructing the population on health and risk crises and the effects that such information had on people's perceptions, attitudes, and behavioral intentions.

## **Methodology**

This research project employed a mixed-method approach and triangulated data across six countries (in alphabetical order): Australia, Finland, Italy, South Korea, Sweden, and the United States of America (USA).

### **Quantitative data: Survey of the population and analysis of public opinions**

Public opinions on COVID-19 information, their attitudes and behavioral intentions resulting from news media consumption and risk/health communications by authorities and other actors as reported in news media were collected at two points of time in the six countries. Data collection 1 took place in fall 2020 (Wave 1), whereas Data collection 2 took place in spring 2022 (Wave 2). A survey instrument was designed to measure several variables such as news consumption patterns, news credibility, source diversity, opinion diversity, media representation, behavioral intention related to seeking and sharing information, getting vaccinated, trust in different sources (including news media, influencers, authorities, health expert, and organizations), people's emotions and psychological reactance, pandemic fatigue, and message fatigue. Cultural dimensions variables were also included in the survey instrument to check for possible variances across countries. The survey questions were translated in the official languages of each country and were submitted to a representative sample of citizens (500 per country) through the help of an external market company. For each wave over 3000 responses from adults (+ 18 years old) were collected stratified by gender, age, education, geographical residency, and household income.

Data were analysed with IBM SPSS software and several conceptual models and hypotheses were constructed and tested in different research studies.

Data is stored in an encrypted system at the University of Jyväskylä and is not publicly available due to the presence of socio-demographic information including political preferences of respondents in the dataset. Research datasets are stored as meta-data at the University of Jyväskylä, under the principal investigator profile (Chiara Valentini).

### **Quantitative/qualitative data: analysis of news articles**

This part of the project only focused on news media data concerning Finland and Sweden. To investigate media roles and COVID-19 issues, voices of social actors, tones, and crisis narratives, we combined a mixed approach including computational analysis based on natural language processing (NLP) methodology and content analysis of selected articles. Data was acquired through the company Retriever, which is the largest Nordic digital news archive and includes all news articles on COVID-19 published in Finland and Sweden during the period between February 2020 and June 2022 from the following news media: For Finland, *Ilta-lehti*, *Ilta-Sanomat*, *Helsingin Sanomat*, *Hufvudstadsbladet*, *Yle* and *Svenska Yle*. For Sweden, *Svenska Dagbladet*, *Aftonbladet*, *Expressen*, *SVT Nyheter*, and *Dagens Nyheter*. These news media were selected based on their size of circulation, and their representation of different voices. The search included a combination of terms such as “pandemic”, “COVID-19”, “coronavirus”, “outbreak”, “infection”, and “social distancing” in Finnish and Swedish languages to search for relevant news articles.

The searched keywords for Finland included both Finnish and Swedish keywords as follows:

```
"sars-cov-2" OR "covid-19" OR ((koronaviru* OR coronaviru* OR covid*) AND (pandemia* OR epidemi* OR rokotu* OR rokot* OR karanteen* OR eristä* OR eristä* OR eristy* OR tartuttami* OR tartun* OR pandemin* OR epidemin* OR vaccination* OR vaccin* OR karantän* OR isolering* OR smittning* OR smitta*))
```

The searched keywords for Sweden included only Swedish keywords as follows:

```
"sars-cov-2" OR "covid-19" OR ((coronaviru* OR covid*) AND (epidemi* OR pandemin* OR epidemin* OR vaccination* OR vaccin* OR karantän* OR isolering* OR smittning* OR smitta*))
```

Overall these search terms resulted in 106 223 news articles (Finland 55 126, Sweden 51 097) in the Retriever media monitoring platform.

For the content analysis part, we developed specific coding books for each study following Krippendorff (2004)'s guidelines for quantitative and qualitative

content analyses. A selection of news articles were coded for crisis issues, voices of social actors/organizations, crisis narratives and tones (positive, neutral, or negative). News articles were operationalized in units of analysis according to the issues discussed and the social actors in focus.

For the quantitative part we conducted an NLP analysis of 3 Finnish-language news media and 2 Swedish-language news media for Finland and 5 Swedish-language news media for Sweden. Online article contents were extracted by scraping the webpage HTML contents. We extracted the title, the lead paragraph, and the body text using Python with requests (ver. 2.28.1) and BeautifulSoup4 (ver. 4.11.1) libraries. The Python version used was 3.10.9. Some articles were behind a paywall, deleted, or required JavaScript to run the webpage; these articles were omitted.

Articles from the Finnish media resulted in no. 32 772 (in Finnish language) and no. 11487 (in Swedish language). Articles from the Swedish media were no. 50 583 (see table 1 for more details).

**Table 1** Overview of news media articles by country and outlet for the NLP analysis.

<i>Country</i>	<i>News media</i>	<i>Tot. No. Of articles</i>
Finland	YLE	14 384
	Ilta-Sanomat	10 917
	Ilta-lehti	7 471
	Hufvudstadsbladet	6 736
	Svenska Yle (some samples are named YLE Internytt)	4 751
Sweden	Svenska Dagbladet	17 471
	Aftonbladet	16 636
	Expressen	8 943
	SVT Nyheter	7 111
	Dagens Nyheter	4 221

The raw texts of the Finnish articles were pre-processed for the downstream tasks using Turku Neural Parser (Kanerva et al., 2018) using Python version 3.6.15. The parser pipeline was used for tokenization, lemmatization (Kanerva et al., 2021) and for morphological tagging. Swedish articles were pre-processed similarly using the Trankit toolkit (ver. 1.1.1) (van Nguyen et al., 2021). We used Top2vec (Angelov 2020) as the method for topic modelling. Top2vec utilises the distributed representation of words (Mikolov et al., 2013) and documents (Le and Mikolov, 2014) to find topic vectors embedded in a space shared with document and word vectors. Top2vec was chosen because it does not require removing stop-words or transforming the tokens to their base form via stemming or lemmatization (Angelov,

2020], which is especially beneficial for the Finnish language that makes use of a plethora of inflections. The topic models were trained separately for Finnish media in Finnish and Swedish and Swedish media separately.

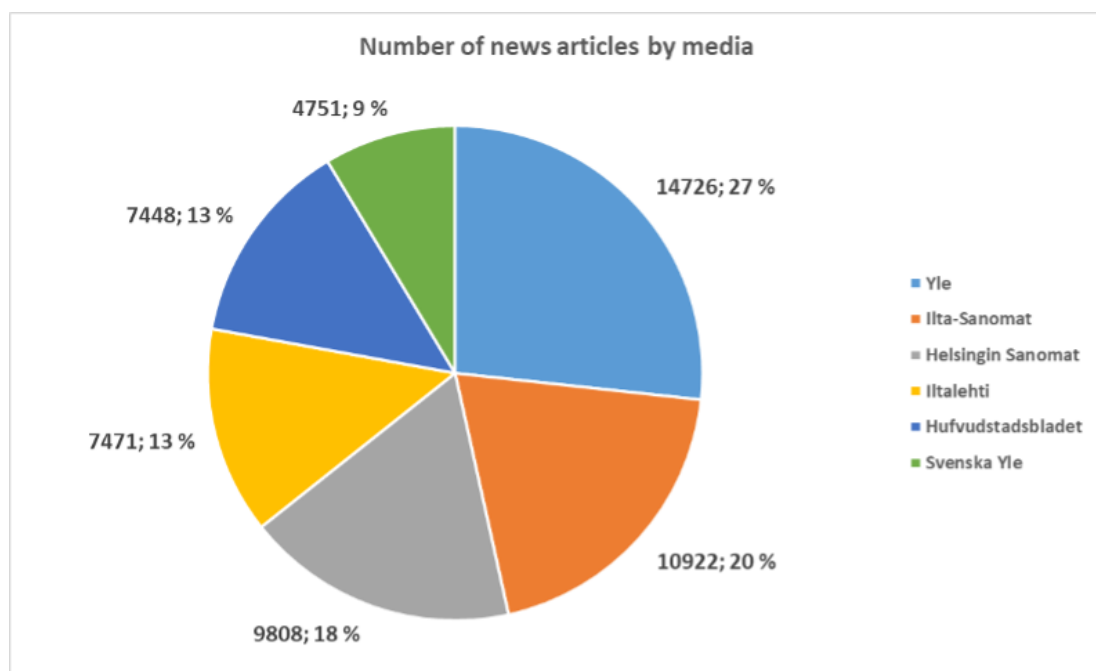
The detailed procedure as well as the NLP code schemes developed and used for extracting the information are stored in the project research dataset at the University of Jyväskylä and available upon request.

### 3 MAIN FINDINGS

In the following some macro findings of the project are summarised.

#### **Finnish and Swedish news media coverage of the pandemic: crisis issues, social actors and media preferences**

In respect to news media coverage, four Finnish-language news media were included: *Yle*, *Helsingin Sanomat*, *Iltalehti* and *Ilta-Sanomat*, and two Swedish-language news media were included *Hufvudstadsbladet* and *Svenska Yle*. In total, the research material covered more than 55,000 Finnish news articles, distributed across the six media outlets (see Fig. 1).



**Figure 1** Number of articles by news media for Finland.



Table 2 shows the distribution of news coverage on COVID-19 information by year of publication. Note that for 2022, we collected data only until the end of June. News coverage was greater during the first year and decreased during the second and third year as more knowledge on COVID-19 disease was shared and the virulence of the disease decreased.

**Table 2** Number of articles by news media per year in Finland

Media	2020	2021	2022	Total
YLE	8063	5625	1038	14726
Ilta-Sanomat	6491	3818	613	10922
Helsingin Sanomat*	5270	3730	808	9808
Ilta-lehti	4598	2439	434	7471
Hufvudstadsbladet	4306	2748	394	7448
Svenska Yle	2555	1760	436	4751
<b>Total</b>	31283	20120	3723	55126

\* The articles from Helsingin Sanomat were not downloadable, therefore excluded for NLP analysis

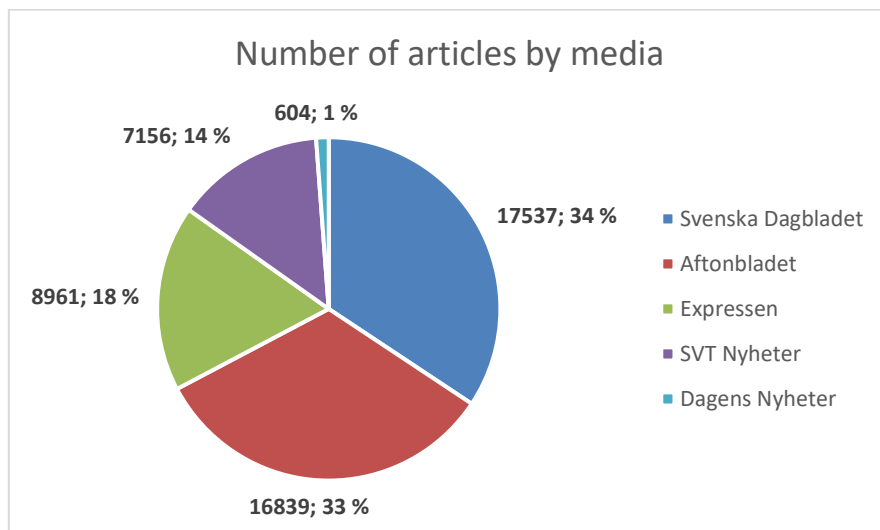
The news coverage in Sweden followed a similar pattern, with more news stories on COVID-19 published during the first year compared to the second and third year (see table 3). Also, for the data on Swedish news media, the 2022 dataset comprises news articles published until June 2022.

**Table 3** Number of articles by news media per year in Sweden

Media	2020	2021	2022	Total
Svenska Dagbladet	10843	6535	159	17537
Aftonbladet	8888	6297	1654	16839
Expressen	5303	2902	756	8961
SVT Nyheter	3961	2507	688	7156
Dagens Nyheter*	529	66	9	604
Total	29524	18307	3266	51097

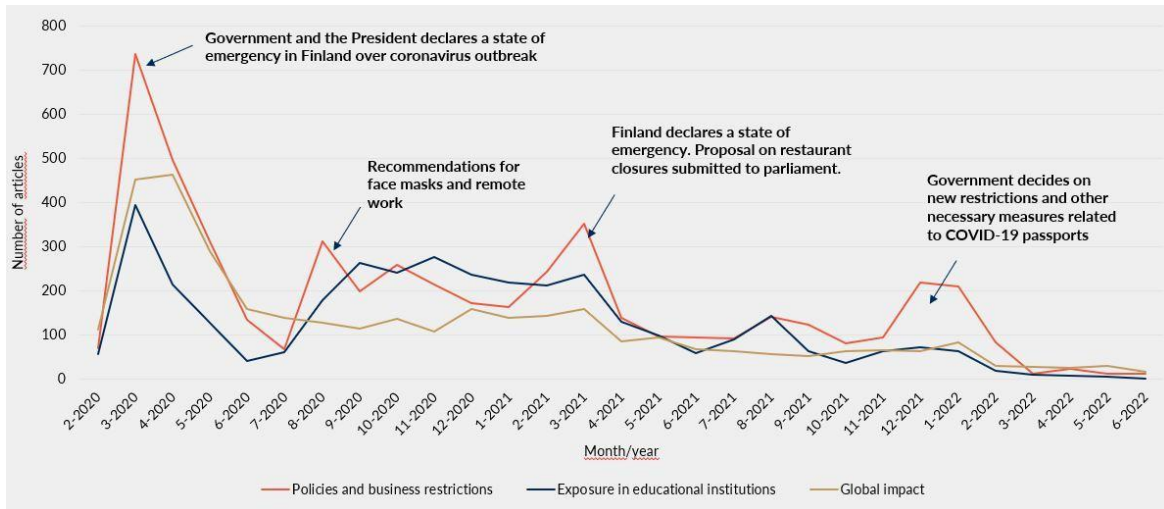
\* The number indicates only those Dagens Nyheter news articles that were downloadable, many other were behind paywall and were thus could not be analysed through NPL analysis

The news coverage among the main Swedish news media also is comparatively evenly distributed as the exclusion of *Dagens Nyheter*, the only media that gave less attention (based on the number of publications) to COVID-19 crisis (see figure 2).



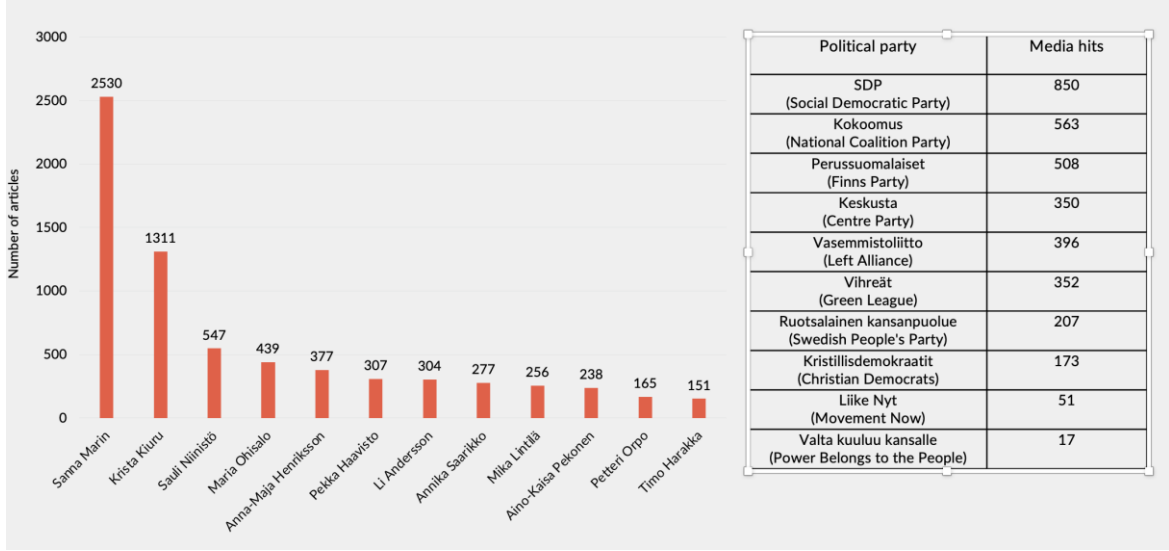
**Figure 2** Number of articles by news media for Sweden.

The news articles that were downloadable were then analysed through NLP methodology. This analysis shows that news media coverage also varied along the time, with peaks related to the spread of new COVID-19 waves or when new COVID-19 measures were adopted by governments (see figure 3). Overall, during March-May 2020, the pandemic was the most prominent crisis topic covered by news media and journalists increased the salience of the pandemic topic through the use of specific crisis narratives. Then, the amount of news coverage steadily decreased and later increased again in October-December 2020 when new variations of COVID-19 started circulating and infecting more people. Media attention stabilised during the first three quarters of 2021, and then an increase of media attention was visible during December 2021 and January 2022. While the news salience remained constant across the years, media attention followed a clear waving pattern as the global situation was in constant change and different social actors engaged in pandemic containment actions with stricter or looser measures.

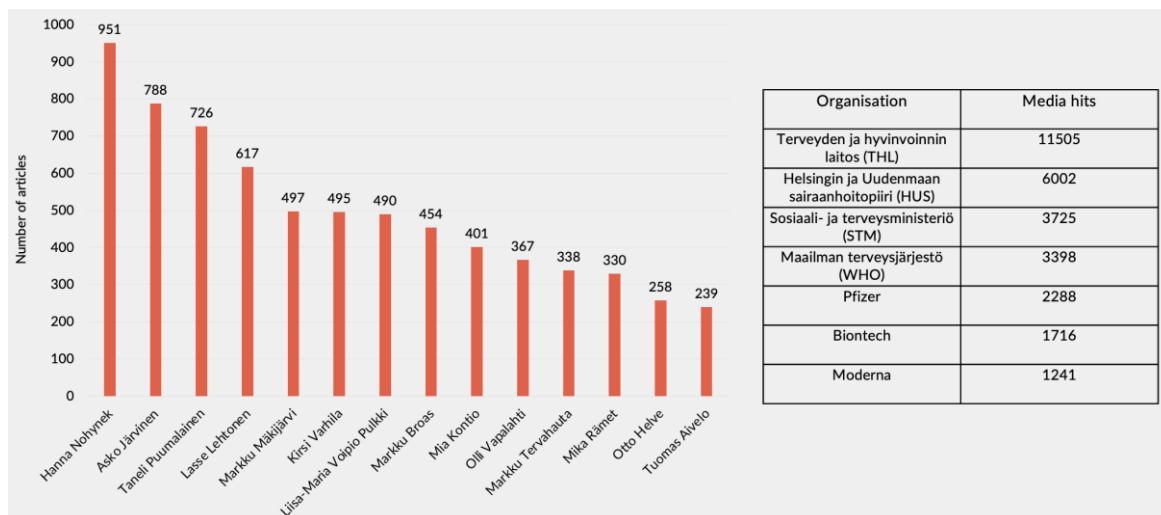


**Figure 3** Timeline of crisis issue evolution, from February 2020 to June 2022 in Finnish news media

Furthermore, the salience of voices among various actors was not equally distributed in news coverage for Finland. Main political actors, COVID-19 researchers, and healthcare professionals were those social actors who received more visibility than others (see Figure 4 and 5).

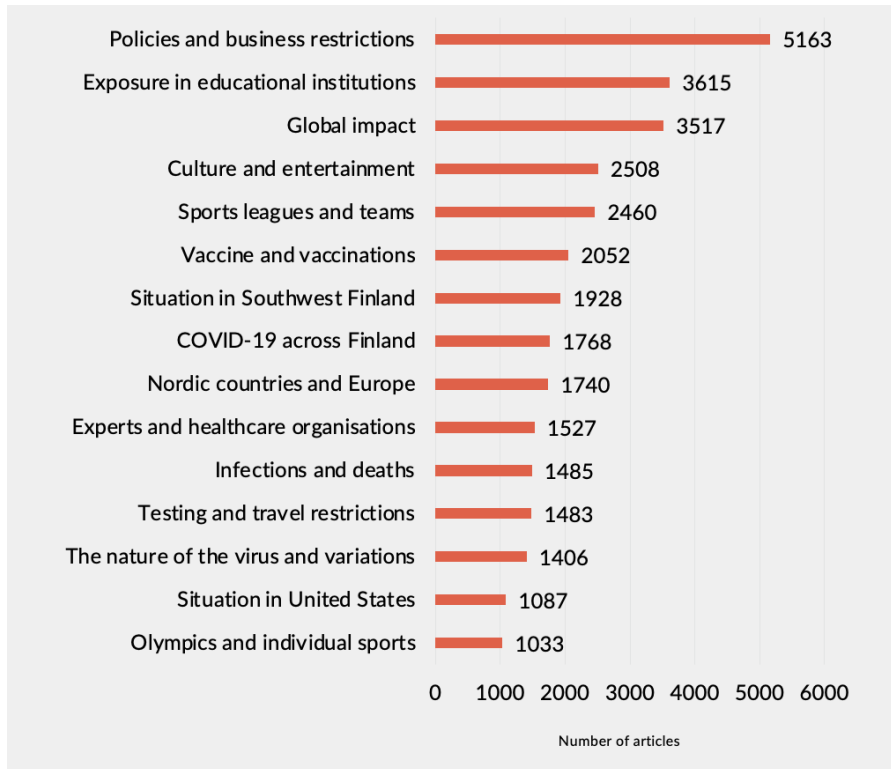


**Figure 4** Media coverage of Finnish politicians and political parties in relation to COVID-19



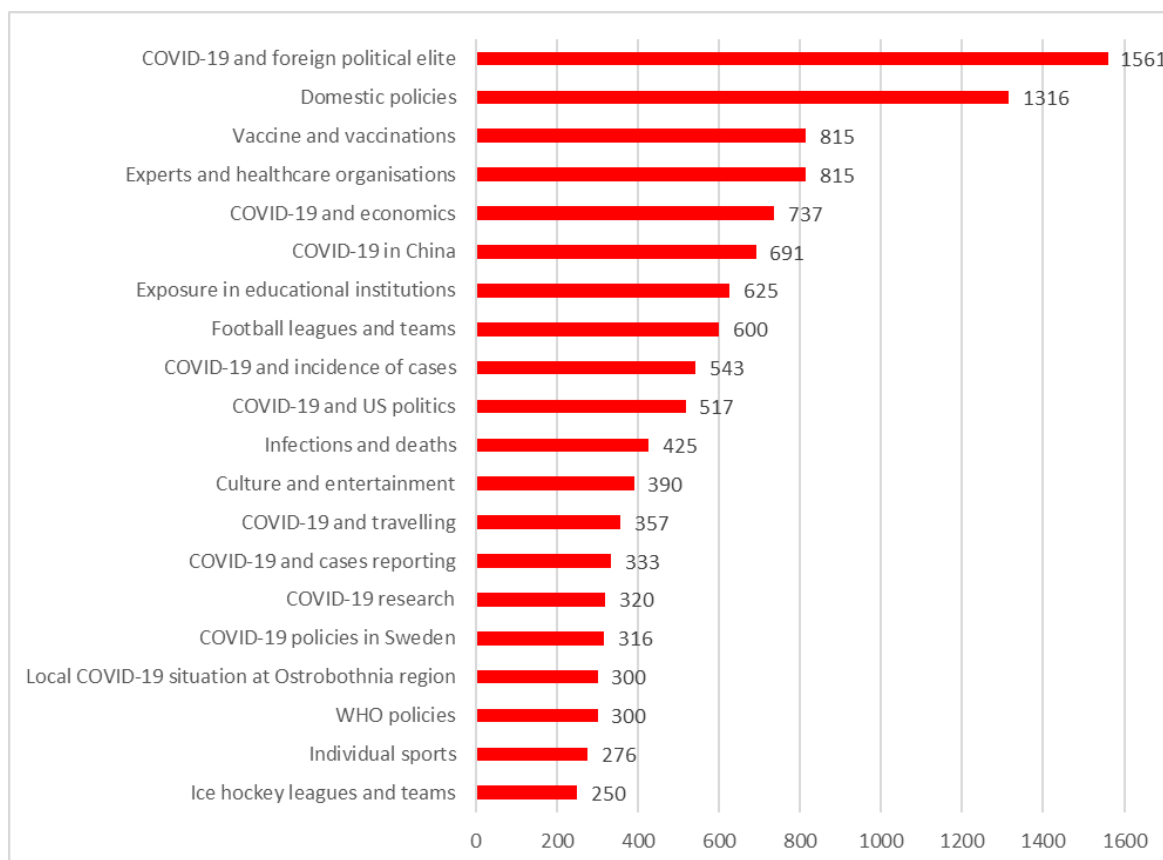
**Figure 5** Media coverage of Finnish health authorities and organizations in relation to COVID-19

Through a natural language processing method, we extract most relevant information on the type of crisis topics covered by news media along all publications on COVID-19 from February 2020 to June 2022. Overall 15 crisis topics emerged from the news articles in Finnish language and 20 from the Finnish-Swedish language journals. The most prominent topics in Finland are illustrated in figure 6, and represent articles covering policies and business restrictions, followed by the impact on the education institutions, and the global impact in societies.



**Figure 6** Major Crisis topics in Finnish news media.

In the Swedish speaking news in Finland, the most prominent topics related to discussions concerning foreign political elite and COVID-19, domestic policies and vaccine and vaccination. The exposure in educational institutions was much less prominent than in the Finnish-speaking news. Also, experts and healthcare organizations received more news coverage (see Fig. 7).



**Figure 7** Major crisis topics in Finnish-Swedish news media.

In the following, the specificities of news coverage by each Finnish news media in respect to the above topics:

**YLE:** Exposure in educational institutions (no. 2794), policies and business restrictions (no. 1994), COVID-19 across Finland (no. 1634), situation in Southwest Finland (no. 1612), global impact (no. 1496)

**Ilta-lehti:** Policies and business restrictions (no. 1636), culture and entertainment (no. 908), global impact (no. 800), sport leagues and teams (no. 745), Nordic countries and Europe (no. 745)

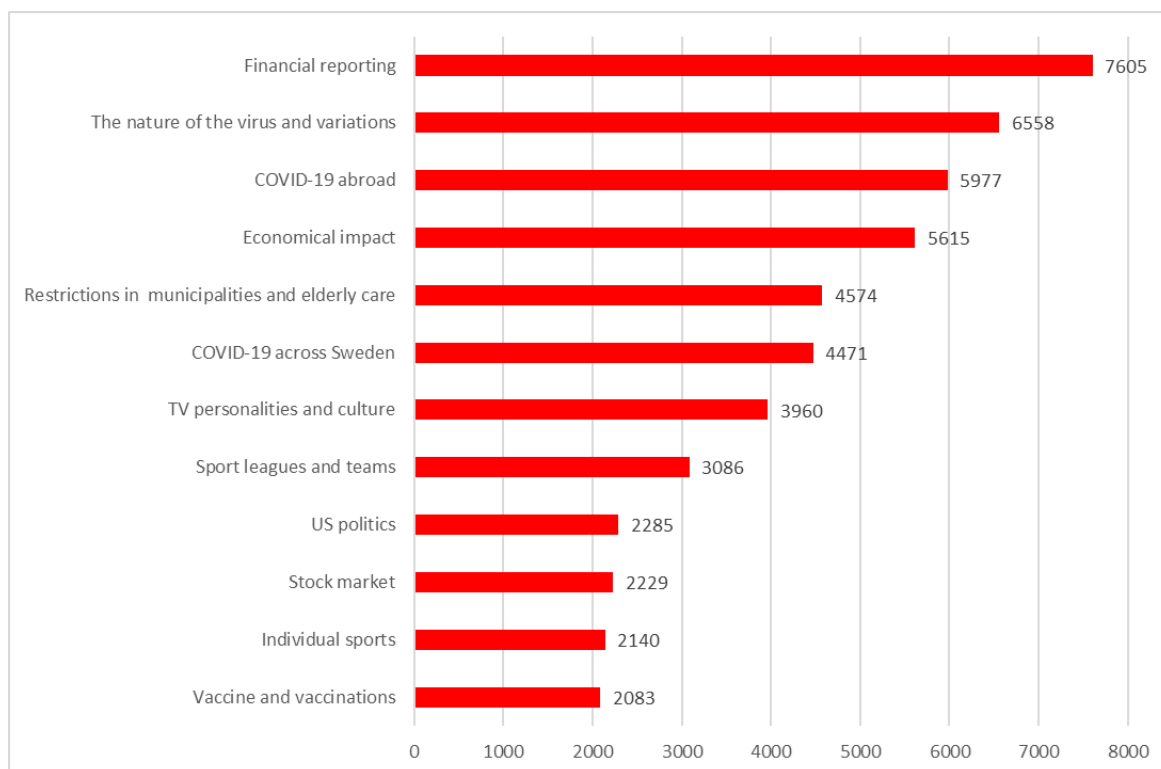
**Ilta-Sanomat:** Policies and business restrictions (no. 1533), global impact (no. 1221), infections and deaths (no. 1193), culture and entertainment (no. 1027), Nordic countries and Europe (no. 861)

**Hufvudstadsbladet:** Foreign political elite (no. 1156), COVID-19 in China (no. 512), Vaccine and vaccinations (no. 490), policies (no. 486), economics (no. 439)

**Svenska-Yle:** Policies (no. 830), healthcare experts and organisation (no. 436), foreign political elite (no. 405), vaccine and vaccinations (no. 325), economics (no. 298)

Overall, YLE primarily focused on covering the pandemic from the point of view of the country (Finland) and reported more on crisis issues related to everyday life, than the other news media. Ilta-Sanomat and Iltalehti covered a wider range of topics/issues than YLE.

News coverage in Sweden shows different results. Swedish journalists primarily focused on crisis topics related to financial reporting, the nature of the virus and its variations, the situation of COVID-19 diffusion abroad and the economic impact (see fig. 8). These crisis topics are different from those covered by Finnish news media, including those in the Swedish-language Finnish news media.



**Figure 8** Major crisis topics in Swedish news media

Overall, these differences may be expected as the two countries implemented very different containment measures, especially during 2020, and therefore the coverage of the crisis issues and implications for society, business and people were clearly different. In Finland, policies and various business restrictions were the most covered topic/issue by both Finnish and Finnish-Swedish news outlets, whereas in Sweden news media focused more on financial aspects related to the health crisis. From the perspective of main political actors, news media gave more visibility to few key political actors and their parties, including international political elite, but also covered the alternative perspectives of other political parties in the news. Health

experts were widely covered in the Finnish news but also large health care, health organizations and pharmaceutical companies received wide visibility in the news articles.

### **Trust effects on health communication perceptions**

This project also identifies trust as a key concept influencing health information consumption as well as public attitudes and behaviours towards the COVID-19 pandemic. Trust has been found to be an important factor in explaining several mechanisms describing people's evaluation of risk and information quality, including those mediated by news media (Fancourt et al., 2020). Public health messages disseminated by trusted government authorities are likely to have more influence over individuals' intentions and behaviours. However, individuals worldwide have different levels of trust in government authorities, which leads to varying levels of compliance intentions (Hofstede, 2011). Additionally, these trust levels may vary during major public crises, such as pandemics.

Accordingly, our findings show how Nordic countries (Finland and Sweden) received higher trust and the general public showed higher confidence on their government health crisis responsiveness than Italy and USA.

Furthermore, one of our studies investigated the specific role of trust and how it varied across distinct government sources, the role of cultural orientations in influencing trust, and the effects that trust produced in health behavioral intentions. This study shows that trust in authorities was not equally distributed. The level of trust in official health communication sources at four governmental levels (i.e. national government, the head of the national government, the national health authority, and the chief representative of the national health authority) was different and explained differently the effects on vaccination intentions and other public behavioral compliance intentions (i.e. willingness to prevent COVID-19 infection in other ways). The direct associations between these factors were mediated by the cultural orientations of power distance and uncertainty avoidance. Furthermore, the direct association of trust in government sources and the indirect relationship through the above cultural orientations varied by country.

### **Information consumption patterns of individuals**

This project investigated people's information consumption behaviours such as preference of sources (journalists, versus influencers, versus authorities, versus friends etc.) and preferences of media outlets (interpersonal, traditional, and digital media) to explore how these preferences affect public attitudes and behavioral intentions in relation to health crisis communication. People's preferences for

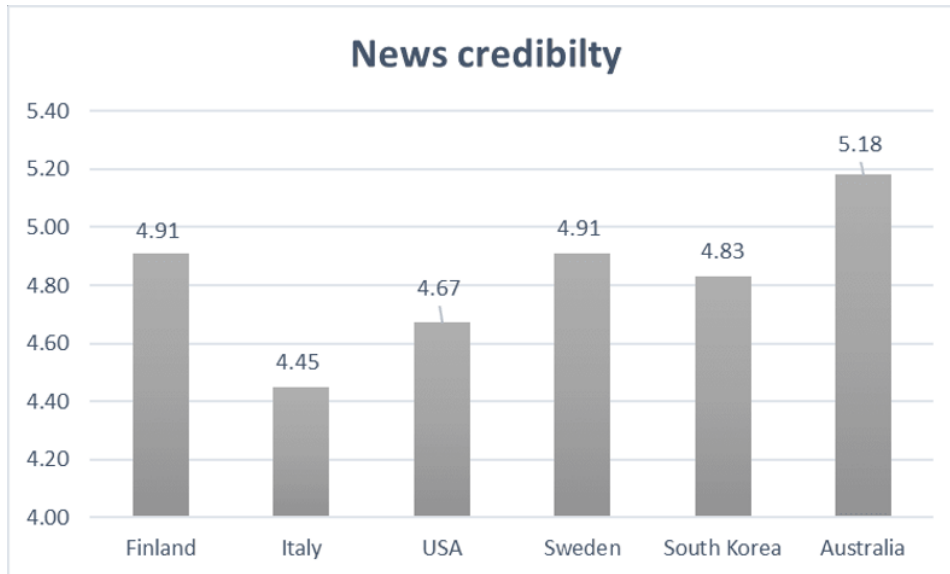


information sources (traditional news media versus social media sources) was found to reduce people's level of uncertainty that was caused by not knowing much about COVID-19 disease. Specifically, in a study concerning the American population we looked at (1) whether uncertainty reduction motivation drove Americans to turn to traditional news media and/or social media to obtain COVID-19 information; (2) if these media preferences shaped their COVID-19 knowledge, cognitive information vetting, and trust in government communication; and finally (3) whether these factors contributed to their intended and actual behaviours (responses), such as getting vaccinated. Mediation analyses showed positive indirect effects between uncertainty reduction motivation and behavioral outcomes via use of social media (in relation to traditional news media) and COVID-19 knowledge and cognitive information vetting.

In another study, we looked at the roles of journalists and social media influencers and their impact on public information consumption. Particularly, we looked at how individuals cognitively cope with the health crisis information they receive from journalists versus digital influencer sources, how they feel about a prolonged public health crisis, and their overall message fatigue. This study was comparative and included data from all the six countries involved in this project. results reveal that consuming journalistic information helps individuals cope with the health crisis, reducing message fatigue, if the health crisis information circulating online is perceived as highly credible. Conversely, relying on social media influencers for health crisis information leads to increasing cognitive coping and message fatigue, despite the credibility of health crisis messages.

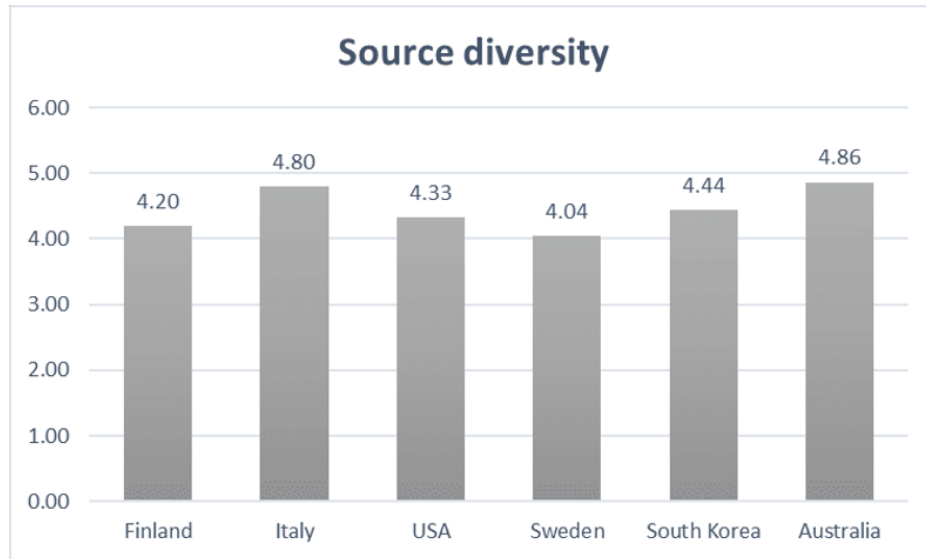
### **Public perceptions of news credibility and quality**

The project also collected empirical data on public perceptions on a set of variables, including their perceptions on news media role and information quality during the pandemic. We tested how people's COVID-19 knowledge was associated with their media consumption patterns, perception of content, opinion and source diversity, and the overall news credibility. We tested the role of news media in public knowledge of a risk situation and offered relevant information and recommendations for media relations activities of public health and risk authorities.



**Figure 9** News credibility by country

In terms of news credibility (see fig. 9), Finnish and Swedish publics are second after Australians for their level of satisfaction with the news coverage of COVID-19 in their respective countries. News credibility was measured in relation to COVID-19 news content, not as a general assessment of the level of media trust in these countries. Overall Finns have high trust in Finnish news media coverage of COVID-19. Compared to Australians and Italians, Finns believe Finnish news media did not give voice to diverse sources of COVID-19 information. Finnish and Swedish publics perceive news media in their respective countries have cited less diverse sources when covering COVID-19 than Australians and Italians. Source diversity measures the extent to which journalists cite different social, political, institutional, and civic actors when discussing COVID-19 topics.



**Figure 10** Source diversity by country

Compared to Italians, Finns believe Finnish news media did not provide diverse opinions about COVID-19 (see Fig. 10). However, the fact that news media covered and cited different sources when reporting on COVID-19 does not necessarily mean there was diversity in opinions and contents in news reports as our data on news articles coverage of social actors and topics show.

We asked respondents to tell us how frequently they read or heard about different opinions on COVID-19 in news media and how frequently the opinions on COVID-19 in news media differed from their own. Among the six countries, Italians perceived their media to have the greatest range of COVID-19 opinion diversity while Swedes and next Finns, in contrast, did not think there was such a diversity of opinions (see fig. 11)

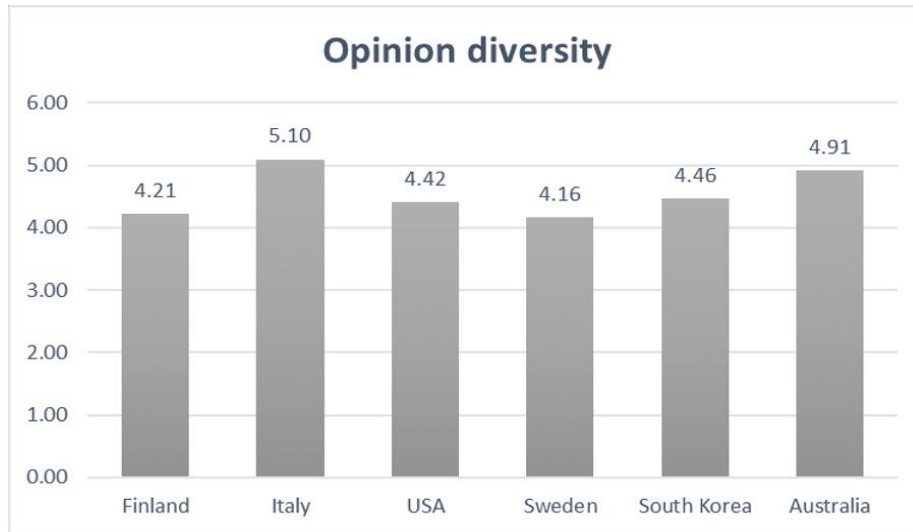


Figure 11 Opinion diversity by country

Taking into consideration that news media were the primary source of COVID-19 information and thus knowledge of the pandemic, we measured the public's level of uncertainty about the knowledge they have been getting from news media. Knowledge uncertainty measures whether people feel they possess enough information on a situation or not. A low level of knowledge uncertainty means people believe they have sufficient knowledge to cope with COVID-19, whereas high knowledge uncertainty shows they feel insecure and believe they do not know much about COVID-19. Swedes and Finns believe they had sufficient information about COVID-19 (low knowledge uncertainty), whereas Italians believe they did not have sufficient COVID-19 information thus they have high knowledge uncertainty (see fig. 12).

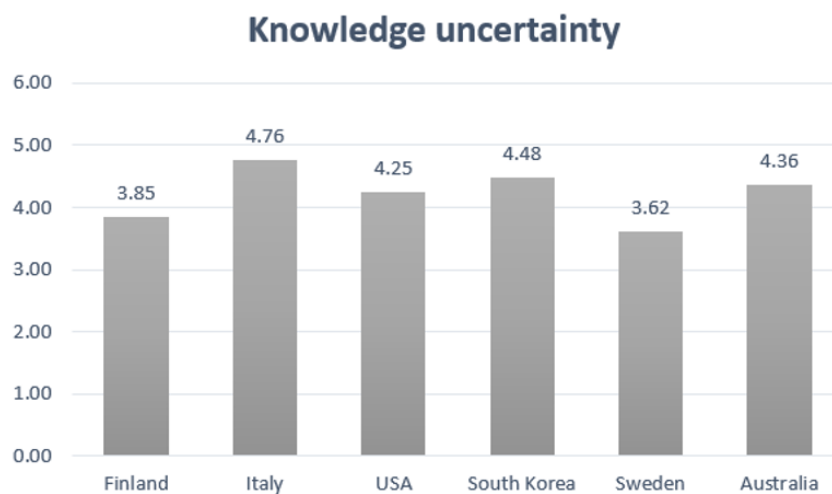


Figure 12 Knowledge uncertainty by country

Citizens who believed the media provided sufficient diversity of COVID-19 information, sources and opinions also believed they had sufficient knowledge to cope with the pandemic. Interestingly when these results are correlated with news media diversity parameters such as a source, content, and opinion diversity, the analysis shows that citizens who perceived lower levels of diversity of sources, content, and opinions – thus perception of more homogeneity in news coverage - indicated they felt they had sufficient knowledge to cope with the pandemic. This was the case in Finland and Sweden, for instance. On the contrary, perceptions of greater source, content and opinion diversity resulted in more confusion and more uncertainty, as indicated in the results of Italian respondents.

### **Effects of health crisis information on people's well-being**

This project investigated a number of different effects, including pandemic fatigue, message fatigue, vaccination intention and perception of government preparedness resulting from people's consumption of specific information. For example, in one study, we explored factors such as trust in the government, people's perceptions of the quality of communication, their COVID-19 knowledge uncertainty and their effects on COVID-19 vaccination intentions and their intentions to follow preventive behavioral recommendations. This study was comparative and included data from all six countries. We found that for each country trust in government sources predicts vaccination intention. Knowledge uncertainty, that is the perception of not having sufficient information about the COVID-19 disease, is a predictor of vaccination intention in all countries, except for Finland. Furthermore, people's intentions to follow the recommended preventive behaviours predicted their vaccination intention in all countries.

In another study, we looked at how information consumption led to specific public emotional responses to health risk and crisis messages. In this study we applied the infectious disease threat (IDT) appraisal model (Austin et al., 2023; Jin et al., 2021) and investigated how adult individuals, in our six countries, responded to health risk and crisis messages and to what degree they managed to cope with the pandemic over time, including how they perceive health information uncertainty, how they feel about the pandemic emotionally, and what they do (or not) in order to overcome the health threat in a long-lasting pandemic. The findings showed that when people have negative feelings toward news about COVID-19, they seek more information (distributed by experts via news media) to cope with their emotions. While pandemic fatigue can be affected by various variables, it can be directly impacted by message fatigue, which is the feeling of being overburdened by

messages. Only Finland and Italy data showed a positive and significant association between information sources and pandemic fatigue, thus reiterating the important role of news media during a prolonged pandemic.

Additionally, one of our studies discovered how Americans' behavioral intentions to comply with government health recommendations and their actual compliance engagement are prompted by drawing upon the Orientation-Stimulus-Orientation-Response model (Markus & Zajonc, 1985). In the examined process, motivation to reduce uncertainty by seeking relevant information (i.e., a pre-orientation factor) was found to positively influence social media use (vs. traditional news media) for COVID-19 information (stimuli). Greater social media use compared to traditional news media was associated with a lower level of COVID-19 factual knowledge and cognitive information vetting (post-orientations), which in turn shaped actual behavioral engagement and behavioral intentions. In the serial process model, this study empirically explicated the underlying mechanism through the examination on the role of multiple cognitive and communicative factors, providing practical insights for health communication in the context of pandemic.

## 4 SIGNIFICANCE OF THE PROJECT OUTCOMES

Government leaders' communication has been vital to shape citizens' confidence in the governments' decisions about whether and how the public should maintain social distancing, travel, and get vaccinated. Thus, understanding how COVID-19 information influenced public perceptions is paramount to better plan, respond to and address information needs during a health emergency. Much of health information during pandemic is distributed via news media. Thus, news media play a key role in amplifying risk communication by public authorities. Literature underlines the important contribution of news media coverage of a widespread health emergency to public attitudes and behaviours towards risk prevention, crisis preparedness, and the correction of public health behaviours individually and collectively.

The COVID-19 pandemic has offered an important situation to study in a longitudinal manner the effects of pandemics on people's information consumption patterns, their level of knowledge and responses resulting from news consumption. In times of crises certain voices, for instance those of authorities or health organizations, can become more visible and prominent in news media. Furthermore, understanding how citizens in a country evaluate the quality of health risk information, focal issues, and crisis narratives, as well as which social actors have had stronger visibility in news coverage about the COVID-19 pandemic, is paramount to evaluate the role of news media in pandemic communication.

Considering that Finnish media have traditionally been ranked as one of the highest in media freedom rankings (Reporters without Borders, 2020), understanding their role during the pandemic is very important for shedding new light of the different role that news media can play as intermediary stakeholders of citizen-authority relations.

Overall, this cross-national and multi-dimensional study is important because it offers an updated, empirically evidenced understanding of a) the type of news media content that was circulating in Finland during the 2020-2022 period and the role that journalists play in reducing COVID-19 knowledge uncertainty, and b) public opinions, attitudes and behavioral intentions resulting from COVID-19 information consumption. Altogether this knowledge can serve those operating in government communication in planning future national and global emergencies.

## Final event

The final event was scheduled on 22 May 2023 and hosted by Tietoevry in Espoo, Finland. An invitation was sent to main crisis, risk and health researchers in Finland, authorities and governmental bodies, news media and key crisis communication professionals. The event was held live with the possibility of streaming it via Zoom to the general public. The streamed event was recorded, and video files of each event presentation are stored at the University of Jyväskylä.

**HELSINGIN SANOMAT FOUNDATION**

**JYVÄSKYLÄ UNIVERSITY SCHOOL OF BUSINESS AND ECONOMICS**

**tietoevry**

### PANDEMIC COMMUNICATION SEMINAR

**THE ROLES OF NEWS MEDIA, BUSINESS, GOVERNMENT & AUTHORITIES IN FINLAND'S PANDEMIC COMMUNICATION: COLLABORATIVE LEARNING FOR FUTURE CRISIS PREPAREDNESS AND RESILIENCE**

Join us in a seminar led by researchers from Finland, UK and USA. Key insights and takeaways will be shared in panel sessions, based on research findings from the 3-year 'COVID-19 Voices in the Global Context' research project supported by Helsingin Sanomat Foundation. Speakers and invited attendees will collaborate in interactive panel discussions to build evidence-based knowledge in preparation for future crises and strengthen societal resilience.

#### LEAD SPEAKERS

**CHIARA VALENTINI**, PH.D., PROFESSOR OF CORPORATE COMMUNICATION, JYVÄSKYLÄ UNIVERSITY SCHOOL OF BUSINESS & ECONOMICS (JSBE), FINLAND

**YAN JIN**, PH.D., PROFESSOR OF PUBLIC RELATIONS & C. RICHARD YARBROUGH PROFESSOR IN CRISIS COMMUNICATION LEADERSHIP, UNIVERSITY OF GEORGIA, USA

**MARK BADHAM**, PH.D., SENIOR LECTURER IN PUBLIC RELATIONS AT LEEDS BUSINESS SCHOOL, LEEDS BECKETT UNIVERSITY, UK

**TIME & DATE:** 9.00-16.00, Monday 22 May (participant may choose to attend all or any panel session)

**LOCATION:** Tieto Evry, Keilalahdentie 2-4, Espoo

**CATERING:** Refreshments, lunch & afternoon snacks provided

**REGISTRATION:** Tickets are complimentary. <https://www.eventbrite.fi/e/pandemic-communication-seminar-tickets-625094553637>

Further information: Dr. Chiara Valentini at [chiara.valentini@ju.fi](mailto:chiara.valentini@ju.fi)

<https://covid19commresearch.com>

#### PRELIMINARY SCHEDULE OF EVENT

Detailed program will be sent one week before event

**09:00**- Welcome message and event introduction  
**09:05**- Project Presentation: *COVID-19 Voices in the Global Context: Project: Learnings across Cultures and Nations*  
**09:50**- Panel 1: Watchdog or Lapdog? The Role of News Media in Pandemic Communication  
**11:15**- Panel 2: "Nordic (dis)trust in uncertain times: The Roles of Governments & Authorities in Pandemic Communication  
**—Lunch break—**  
**13:45**- Panel 3: Doing more good with the "trust" capital?: The Role of Business in Pandemic Communication  
**15:20**- Conclusions and wrap up of main takeaways  
**16:00**- end of event

Figure 13 Flyer of event invitation

The event presented the research results of the project as a whole. The program of the event was the following.



**Program:**

9.00: Welcome message and introduction to the event

9:10: COVID-19 Voices in the Global Context Project: Learnings across Cultures and Nations- project presentation

Dr Chiara Valentini, Professor of Corporate Communication, Jyväskylä University School of Business & Economics, Finland

Dr Markus Mykkänen, Postdoctoral Researcher, Jyväskylä University School of Business & Economics, Finland

Dr. Mark Badham, Senior Lecturer, Leeds Beckett University, Leeds, UK

09:40-09:50 - networking

9.50: Panel 1: **Watchdog or Lapdog? The Role of News Media in Pandemic Communication**

Moderated by Kia Haring

Panellists:

Dr Mark Badham, Senior Lecturer, Leeds Business School, UK

Dr. Markus Mykkänen, Postdoctoral Researcher, Jyväskylä University School of Business & Economics, Finland

Eero Hyvönen, Chair, Council for Mass Media

Collaborative learning: All in-person participants

11.15 Panel 2: **Nordic (dis)trust in uncertain times: The roles of governments and authorities in pandemic communication**

Moderated by: Mark Badham

Panellists:

Dr Chiara Valentini, Professor of Corporate Communication, Jyväskylä University School of Business & Economics, Finland

Päivi Tampere, PM, Head of Communication (confirmed)

Johanna Pajakoski, City of Espoo, Head of communication (confirmed)

Collaborative learning: All in-person participants

12.30: Lunch

13.45: Panel 3: **Doing more good with the “trust” capital?: The Role of Business in Pandemic Communication**

Moderated by: Chiara Valentini

Panellists:

Dr Yan Jin, Professor of Public Relations & C. Richard Yarbrough Professor in Crisis Communication Leadership, University of Georgia, USA.

Kia Haring or risk officer, Tietoevry

Miia Rosenqvist, Procom, Director, Training and Development (confirmed)

Atte Palomäki (not yet invited but could be an option)

Collaborative learning: All in-person participants

15.00: Afternoon break

15.20: Wrap-up: **The Roles of News Media, Business, Government & Public Sector Organisations in Pandemic Communication**

**Mark, Chiara, Yan, Kia**

16:00 - end of the event

This final event received media coverage across major Finnish news media outlets including television news. The event participants were engaged in different discussions and reflections concerning building a more resilient society based on the main results of the project.

## 5 PROJECT OUTPUTS

The project resulted in 7 scientific publications in international journals and edited volumes, 13 international conference presentations, 6 dissemination events held in Finland, Italy and remotely with global participants, and a few news media reports. There are currently 6 other publications either submitted to scientific peer-reviewed journals and/or in preparation for such journals. These publications are not listed in this document to preserve the blind review process.

### Scientific publications

1. Lievonon, M., Valentini, C. & Badham, M. (accepted, in press). Strategic Ambiguity by the Finnish Government during COVID-19 Pandemic: A Case Study. In Diers-Lawson, A., Schwarz, A., Meißner, F., & Ravazzini, S. (Eds.), *Risk and Crisis Communication in Europe: Towards Integrating Theory and Practice in Unstable and Turbulent Times*. ECREA Book Series. Routledge, New York
2. Valentini, C., & Badham, M. (2023). Public trust in governments' communicating with intermediaries : Finnish and Swedish Governments during the COVID-19 pandemic. In R. Tench, J. Meng, & Á. Moreno (Eds.), *Strategic Communication in a Global Crisis : National and International Responses to the COVID-19 Pandemic* (pp. 165-183). Routledge.  
<https://doi.org/10.4324/9781003184669-16>
3. Valentini, C., Ihlen, Ø., & Tench, R. (2023). A question of trust : Exploring trust concepts, experiences, and early observations from Europe. In R. Tench, J. Meng, & Á. Moreno (Eds.), *Strategic Communication in a Global Crisis : National and International Responses to the COVID-19 Pandemic* (pp. 15-31). Routledge.  
<https://doi.org/10.4324/9781003184669-4>

4. Choi, S. I., Jin, Y., & Badham, M. (2023). Factors influencing americans' preventive behaviours during the COVID-19 Pandemic: Lessons for strategic health and risk communicators. In R. Tench, J. Meng, & Á. Moreno (Eds.), *Strategic Communication in a Global Crisis : National and International Responses to the COVID-19 Pandemic*. Routledge.  
<https://doi.org/10.4324/9781003184669-22>
5. Kim, S, Choi, S. I., Valentini, C., Badham, M., & Jin, Y. (2023). How motivation to reduce uncertainty predicts COVID-19 behavioral responses: Strategic health communication insights for managing an ongoing pandemic. *American Behavioral Scientist*, Online First, 000276422311640.  
<https://doi.org/10.1177/00027642231164051>
6. Choi, S. I., Kim, S., Jin, Y., Valentini, C., Badham, M., Colleoni, E., & Romenti, S. (2022). Effects of individuals' cultural orientations and trust in government health communication sources on behavioral intentions during a pandemic : A cross-country study. *Health Communication*, Early online, 1-15.  
<https://doi.org/10.1080/10410236.2022.2159975>
7. Colleoni, E., Romenti, S., Valentini, C., Badham, M., Choi, S. I., Kim, S., & Jin, Y. (2022). Does culture matter? Measuring cross-country perceptions of CSR communication campaigns about COVID-19. *Sustainability*, 14(2): 889.  
<https://doi.org/10.3390/su14020889>

### **Presentations in academic conferences**

1. Mykkänen, M. & Valentini, C. (2023). *Salient Issues of the COVID-19 pandemic: Media lobbying strategies of Finnish trade associations*. Paper presented at the EUPRERA 24th Annual Congress “Responsible– Communication or Communicating Responsibility”, Charles University, Prague, Czech Republic, September 20-23, 2023.
2. Valentini, C., Colleoni, E., Jin, Y., & Choi, S.I. (2023). *Public's Health Information Consumption During a Prolonged Pandemic: The Competing Roles of Journalists and Digital Influencers and Their Effects in Combating Message Fatigue*. Paper presented at the ICA Annual Congress, Toronto, Canada, 25-29 May
3. Jin, Y. Choi, S.-I., Badham, M., Valentini, C., and Kim, S. (2022). *Feelings and Healings in Different Spaces and Phases: How Individuals Cope with the COVID-19 Threat Cognitively, Affectively and Conatively*. EUPRERA 23rd Annual Congress, September 21-24, 2022, Vienna, Austria

4. Valentini, C., Jin, Y., Colleoni, E., Romenti, S. and Kim, S. (2022), *Dramatizing COVID-19: How Individuals' Emotional Responses affect COVID-19 Information Consumption Preference for Sources and Channels*. Paper presented at the EUPRERA 23rd Annual Congress, September 21-24, 2022, Vienna, Austria
5. Lievonen, M., Valentini, C. & Badham, M. (2022). *Managing Stakeholder Expectations through Strategic Ambiguity: A case study of Public Sector Communication in Finland*. BledCom 2022 Symposium, July 1-2, Lake Bled, Slovenia.
6. Choi, S.I., Kim, S., Jin, Y., Valentini, C., Badham, M., Romenti, S., and Colleoni, E. (2022), *Trust and Cultural Factors Shaping COVID-19 Vaccination Intentions across Six Countries*. Paper presented at the International Communication Association (ICA) Conference, May 26-30, 2022, Paris, France.
7. Choi, S.-I., Jin, Y., Valentini, C., Badham, M., and Kim, S. (2022), *How Diverse Publics' Perceptions of Health Information Channel Credibility and COVID-19 Risk Impacted Their Preventive Behavioral Intention: Insights from a U.S. National Survey*. International Public Relations Research Conference (IPRRC), March 3-5, 2022, Orlando, FL.
8. Jin, Y. (2021), *Fighting Misinformation and Managing Conflicts in Public Crisis Communication: Lessons Learned from Recent U.S. History and Current COVID-19 Pandemic*, in Panel "Distant but connected. The communication and social aspects of COVID - 19" (Chair: S. Jedrzejewski). The 8th European Communication Conference (ECC). ECREA 2021 virtual conference 6-9 September 2021
9. Choi, S.-I. (2021). "Assessing the power of trust and knowledge: Identifying predictors of COVID-19 vaccination intention via a cross-national study". Paper presented in the panel "Public response to COVID-19 communications from government, business and media: A cross-national study", Bledcom Symposium 2021, July 1-2, virtual conference.
10. Kim, S. (2021). *Trust in government communication during COVID-19 pandemic*. Paper presented in the panel "Public response to COVID-19 communications from government, business and media: A cross-national study", Bledcom Symposium 2021, July 1-2, virtual conference.
11. Badham, M. (2021). *Media credibility during COVID-19 news coverage*. Paper presented in the panel "Public response to COVID-19 communications from

government, business and media: A cross-national study”, Bledcom Symposium 2021, July 1-2, virtual conference.

12. Colleoni, E. (2021). *Businesses' responsible communication during COVID-19 outbreak*. Paper presented in the panel “Public response to COVID-19 communications from government, business and media: A cross-national study”, Bledcom Symposium 2021, July 1-2, virtual conference.
13. Valentini, C., Jin, Y., Badham, M., Choi, S.-I. & Colleoni, E. (2021, May 27-31). *News Media Role in Public Knowledge of COVID-19: A Finnish, Italian and USA Comparative Study*. Paper presented at the International Communication Association 2021 Annual conference, virtual, 27-31 May 2021

### Media outreach

1. STT (2023, May 23th) Kyselytutkimus: Suomen koronauutisoinnissa painottui vallanpitäjien ääni. [Trans. Survey: Finland's corona news focused on the voice of those in power] <https://www.mtvuutiset.fi/artikkeli/kyselytutkimus-suomen-koronauutisoinnissa-painottui-vallanpitajien-aani/8705228#gs.5opu4m>
2. Valentini, C. (2021, May 2), Credibilità, autenticità e accuratezza dell'informazione COVID-19. Il segreto finlandese per gestire la pandemia e i comportamenti dei cittadini. [Trans. Credibility, authenticity, and accuracy of COVID-19 information. The Finnish secret to manage the pandemic and citizens' behaviours]. The Corporate Communication Magazine, no.1., [https://icch.it/wp-content/uploads/2023/02/The-corporate-communication-journal\\_05\\_pag.singole\\_compressed.pdf](https://icch.it/wp-content/uploads/2023/02/The-corporate-communication-journal_05_pag.singole_compressed.pdf)
3. Jin, Y. & Valentini (2021, January). Communicators Face Multiple Hurdles as They Race to Erase U.S.'s Vaccine Hesitancy. *PR News Online*, Issue 1.
4. Thuren, P. (2021, November 3), International study examines the role of the media in COVID-19 communications. *JYUnity, Science News*. <https://jyunity.fi/en/current/international-study-examines-the-role-of-the-media-in-COVID-19-communications/>
5. Valentini, C. & Badham, M. (2022, February 9). #EthicsMatter - Public trust in the media during the pandemic: Communication lessons. Global Alliance Blog post, available at:

<https://www.globalalliancepr.org/thoughts/2022/2/9/ethicsmatter-public-trust-in-the-media-during-the-pandemic-communication-lessons>

### **Dissemination through professional presentations**

1. Valentini, C. (invited panellist), *Informatic disorder in social media platforms. Challenges for communicating health and science*. Seminar at the University of Cagliari, 10 May 2023
2. Valentini, C. (invited panellist), *Science Night Live!*, Eureka Museum, Espoo, Finland, 29 March 2023
3. Valentini, C. (invited speaker). *Role of Negative Emotions in Influencing People's COVID-19 Information Consumption Behaviours*. Global Alliance Ethics month, webinar, February 2023
4. Valentini, C. & Badham, M. (invited speakers). *Trust in Media during the Covid pandemic: Implications for communication professionals*. Global Alliance Ethics month, webinar, February 2022. Video recorded and posted in YouTube, at: <https://www.youtube.com/watch?v=11S31ofZifg>
5. Valentini, C. (invited speaker). *Trust in Post Corona Public Relations. The 17th virtual international public relations symposium*. Public Relations Institute Arman, Teheran, Iran, 16 January 2022 (online participation)

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