Evaluation in social media discourse: A corpus-assisted discourse study of evaluative images of the Covid-19 pandemic on the Finnish Twitter-sphere

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Abstract

Studies have shown that the way crises are discussed affects both personal and collective thinking. In fact, a better grasp of how people perceived the health crisis of Covid-19 is vital for managing future health crises and other societal upheavals. Therefore, it is essential to understand how the pandemic was represented on social media, where different attitudes and emotions collide. In this study, we analyse how various discourse topics, i.e., themes reflecting discourses, related to the pandemic were evaluated on Twitter. We also examine the evaluative images that emerged from these discussions. Similar to previous studies, with evaluation, we refer to expressions of attitudes and emotions through language use. Evaluative images, on the other hand, are created when these discourse topics and evaluations intersect. To tackle the vast amounts of data generated on Twitter, we employ the combination of the unsupervised machine learning method of topic modelling and the discourse analytical approach of evaluative parameters to study a large corpus of 374,978 Finnish tweets from January 2020 to August 2021. The results of our corpus-assisted discourse analysis reveal 35 distinct discourse topics and 8 groupings encompassing themes such as health, protective measures and support services. In addition, evaluative expressions of emotivity, mental state, importance and necessity are involved. From this analysis, two primary evaluative images emerge: i) a focus on consistent responsibility and emotional reactions, and ii) support for the groups most affected by the pandemic. These images reflect the situation's complexity, necessitating profound accountability and support across different layers of society.

Keywords: corpus-assisted discourse studies, Covid-19, discourse analysis, evaluation, topic modelling, Twitter

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1 Introduction

On social media, discussions can easily become heated when different attitudes and emotions collide. Crises, in particular, tend to generate intense discourses in digital environments as individuals and communities attempt to make sense of unfolding events (Seeger & Sellnow 2016; Bednarek et al. 2022). While the global coronavirus disease (Covid-19) increased social isolation, social media brought people closer than ever as we communicated and interacted with one another throughout the crisis (Spencer 2023). However, in these digital environments, Covid-19-related opinions and information that differed from the mainstream viewpoints, such as official guidelines by the World Health Organization (WHO), were censored and suppressed by social media giants (Niemiec 2020; Shir-Raz et al. 2023). For example, accounts were removed, and the visibility of posts was blocked (Martin 2021). The suppression attempts did not clear up all the opposing information from social media platforms, but they potentially caused biased discourse around the crisis, which is important to acknowledge (Harambam & Voss 2023). Despite the censorship, the pandemic was widely discussed on Twitter (now known as X), a platform that hosted evaluative discourses from various social media actors (Spence et al. 2015). With evaluation, we refer to expressions of language users' attitudes and emotions through language (Bednarek 2010). Although Covid-19 is no longer classified as a pandemic at the time of writing, understanding citizens' perceptions during international crises is vital for managing future pandemics and other societal upheavals (Lindholm et al. 2023). Indeed, how we evaluate crises shapes public understanding and frames the societal response to major events (Gearhart & Kang 2014; Seeger & Sellnow 2016).

A plethora of previous research has examined the expression of attitudes and emotions during the Covid-19 pandemic on Twitter and beyond. In linguistics, Zappavigna & Dreyfus (2022) found that people used temporal meanings to form affiliation strategies while sharing values and experiences during the pandemic. In communication and media studies, Lindholm et al. (2023) showed how Danish authorities supported citizens by offering advice on adapting to the crisis and maintaining well-being. They also found that gratitude and support for healthcare workers in Norway were expressed through the hashtag *#KlappForNorge* ('ClapForNorway'). Similarly, Fiskvik et al. (2023) showed how Twitter was used by health authorities and citizens to provide not only support but also contestation concerning vaccinations. According to their study, different emotions and opinions evolved in the course of the pandemic, ranging from critique and disappointment to scepticism and optimism. On the other hand, opinions and especially trust in the Finnish context have been examined, for example, through surveys. In their study, Jallinoja et al. (2024) discovered that public trust in science and scientific institutions such as the Finnish Institute for Health and Welfare (THL) remained relatively high during the first two years of the pandemic, whereas trust towards the ministry primarily managing the crisis weakened. In another study, Jallinoja et al. (2021) found that citizens who trusted national crisis management also trusted the advantages of mask use and vaccinations, and vice versa.

Despite these valuable contributions, there is still a lack of knowledge about how the pandemic was perceived by social media actors, especially in the context of the Finnish language which can often be overshadowed by mainstream languages such as English. Therefore, the present research aims to analyse evaluations by Twitter users using a vast collection of tweets with corpus-assisted methods. In this paper, our main interest is to

explore how evaluations intersect with the *discourse topics* and create descriptive entities called *evaluative images* (see Saarni & Laippala 2024). We use the notion of a discourse topic to describe not only the theme of a tweet and but also to pinpoint the ongoing discourses that may appear in the topic, that is, how the global crisis was discussed (e.g., van Dijk 1977; Smyrnaios & Ratinaud 2017; Johansson et al. 2018; Jacobs & Tschötschel 2019; Lehti et al. 2020; Pälli & Lillqvist 2020). To this end, we pose the following research questions (RQ):

> RQ1: How do different social media actors evaluate discourse topics on Finnish Twitter during the Covid-19 pandemic?
>
> RQ2: How do evaluations and main discourse topics intersect to form evaluative images of the Covid-19 pandemic on Twitter?

To answer these questions, we use a large Twitter corpus of 374,978 tweets in Finnish and apply the method of Corpus-Assisted Discourse Studies (CADS, see e.g., Partington et al. 2013), which utilises quantitative corpus methods and qualitative discourse analysis. Due to the size of our data, manually identifying discourse topics would be impractical. While a purely quantitative method alone would not allow for a detailed linguistic analysis, we employ *topic modelling*, an unsupervised machine learning method, to identify discourse topics. With topic modelling, it is possible to "explore the corpus in its entirety without prior manual analysis or a priori assumptions on what might be considered as normal" (Jacobs & Tschötschel 2019: 477). Second, to understand what kinds of evaluations intersect with the discourse topics, we use a discourse analytical approach of *evaluative parameters,* which relates to values, norms and standards, capturing how social media actors evaluate things through language (Bednarek 2010). Language users can, for example, evaluate things as good or bad, important or unimportant or possible or impossible. Our research complements existing scholarship on attitudes and emotions during the pandemic by examining the intersection of evaluations and discourse topics to create evaluative images. This approach enhances our understanding of how the crisis was perceived online and how these perceptions potentially influenced other social media actors. Additionally, our chosen methods contribute to previous studies combining topic modelling and discourse analysis and, more widely, research using CADS methods (e.g., Törnberg & Törnberg 2016a; 2016b; Lehti et al. 2020) and illustrate how they complement each other in a quantitative and qualitative study.

The article is structured as follows: First, we outline the theoretical framework by discussing evaluative language and discourse topics on Twitter. Second, we describe the data and methods used in our analysis. We then present the discourse topics, evaluations and social media actors identified from the data. Subsequently, we demonstrate how these intersect to form evaluative images and explore the emerging discourses. Finally, we conclude the study with a discussion of the findings.

2 Evaluative language and discourse topics on Twitter

Evaluative language or evaluation is an inherent part of our daily interactions, whether in digital environments or offline. Evaluation refers to attitudes, emotions and opinions about subjects that a language user engages with (Hunston & Thompson 2000; Bednarek

& Caple 2012). In other words, when we discuss things, we simultaneously evaluate them, either consciously or unconsciously. We can describe our day as *wonderful*, our feelings as *confusing* or the job market as *insecure*. Even smaller grammatical words such as *but*, *will* and *should* can contain evaluative tone, which is possible to analyse in their given context. For example, *will* can be used to express the likelihood of things, and *should* to denote that something is necessary to do (Bednarek 2010). These are, of course, simple examples, but they illustrate the many ways evaluation is present in language.

In linguistics, evaluative language has been approached from various angles, such as stance (Biber & Finegan 1989), appraisal (White 2002; Martin & White 2005) and evaluation (Hunston & Thompson 2000). For the purposes of this study, we analyse evaluation in tweets using the discourse analytical framework of evaluative parameters, which unifies these earlier perspectives into a single framework (Bednarek 2008; 2010). Evaluative parameters relate to different values, norms and standards through which language users assess specific themes in their language (Bednarek 2010; Bednarek & Caple 2012). With these parameters, it is possible to trace the evaluations made by a language user (Bednarek 2010). When applying evaluative parameters, it is also necessary to consider other aspects such as the person doing the evaluation, the object of evaluation, intensity of evaluation and possible motivations behind the evaluation (Bednarek 2010). The framework has been originally created for the study of evaluation in news discourse (Bednarek 2008; 2010), but we consider the evaluative parameters to be equally suited for analysing other types of discourse as well. They are especially suitable for analysing language on social media, where the core idea is to share one's feelings and opinions. Furthermore, the framework's open-endedness means that new parameters can be created if the analysis so requires.

Evaluation plays a pivotal role on the microblogging site Twitter, as the platform serves as a communal space where real-time exchanges of experiences and public perceptions unfold (Zappavigna 2012; 2017a; Lachlan et al. 2014; Bednarek et al. 2022). Social media actors inevitably adopt evaluative stances, as sharing and criticising emotions and attitudes is fundamental to social media discourse (Zappavigna 2017a). Beyond written text, tweets have different communicative functions that are often compared with evaluative language (Zappavigna 2012; 2017b). In social media discourse, emoji are often used to indicate emotions, denote stances and negotiate interpersonal meanings (Logi & Zappavigna 2021). Emoji can both express meaning independently and together with the text (Logi & Zappavigna 2021). Similarly, hashtags allow social media actors to place their emotions and opinions in a way that makes them easily discoverable for other users and fosters connections with others (Zappavigna 2017b).

Evaluations are always about something (Zappavigna 2017a). On Twitter, social media actors take a stand and express their emotions on topics that blend public and private domains (Zappavigna 2014). Topics can be examined from diverse perspectives. On the one hand, Halliday & Matthiessen (2014) argued that a topic refers to the information placed at the beginning of a clause. On the other hand, Knight (2010) suggested that evaluations align with their topics, forming "couplings". However, in this study, we approach the notion of the topic simultaneously from a computational and discursive viewpoint. This means that we rely on topic modelling to detect topics in our data. A topic model recognises lists of words that have a high probability to co-occur within a document or other unit of text (Murakami et al. 2017). These lists of words that tend to co-occur can be called topics (Murakami et al. 2017). However, far from merely representing themes or subjects of texts, previous research (e.g., Smyrnaios & Ratinaud 2017; Johansson et

al. 2018; Jacobs & Tschötschel 2019; Lehti et al. 2020) has demonstrated that topics can also function as meaningful units that contain elements that mirror ongoing discourses. Consequently, we apply the notion of discourse topic to describe the topics generated by our topic model. This way, we also take into consideration the discursive aspect of the topic, that is, language use and social action (see e.g., van Dijk 1980; 1997; Pälli & Lillqvist 2020). For example, a discourse topic could be related to vaccinations. Simply not just analysing what was said about them, we can study how vaccinations were discussed. What kind of attitudes, opinions and emotions were expressed towards them through language? Do they reflect something on a larger societal level? Does the discourse around vaccinations reveal, for instance, polarisation between different language users?

Building on previous work (Saarni & Laippala 2024), we posit that when discourse topics intersect with evaluative parameters by different social media actors, it becomes possible to identify descriptive entities known as *evaluative images*. We consider that these evaluative images can illustrate how socially significant events are linguistically described in a digital environment such as Twitter. In other words, the images provide detailed information on how specific events are discussed and offer access to diverse attitudes and emotions shared online. Although the word "image" alone can take us more towards a visual mindset, we suggest that the notion of evaluative image highlights the important and inherent role of evaluation in social media discourse.

Existing studies on social media and online discourse have combined topic modelling with discourse analysis. Törnberg & Törnberg (2016a) used topic modelling and Critical Discourse Analysis to explore the discursive connections between anti-feminism and Islamophobia in Flashback, a Swedish online forum known for right-wing views. In another study, they (2016b) examined the representation and discursive construction of Muslims and Islam. In a separate case, Lehti et al. (2020) used topic modelling and discourse analysis to examine how poverty is discussed in Finland's largest online forum *Suomi24* ('Finland24'). The above studies highlight the usefulness of these methods. The methods of Corpus-Assisted Discourse Studies and topic modelling enable discourse analysts to handle large amounts of data, which would otherwise be infeasible to process manually (see e.g., Partington et al. 2013). Moreover, topic modelling introduces a level of objectivity to discourse studies in the preliminary phase of the analysis due to its computational and unsupervised nature. Topic modelling can also reveal nuanced differences in discourse topics that could otherwise remain hidden (Mykkänen et al. 2024). On the other hand, discourse analysis provides the necessary depth and critical interpretation of the topic model's results. To summarise, the quantitative method can show us macrolevel insights to the social media coverage of the pandemic and what social media actors are discussing (see e.g., Mykkänen et al. 2024), whereas the qualitative one helps us to focus on the more detailed analysis of an evaluative response, that is, how discourse topics are evaluated.

3 Data and methods

3.1 Corpus

Our dataset was derived from a corpus built by collecting tweets using the Twitter API between September 2019 and August 2021, curated by the TurkuNLP team from the University of Turku. This timeframe was chosen, as we wanted the corpus to cover various phases of the pandemic from the early days to the different waves and calmer

periods, such as summer. The tweets were collected based on a search term list that included words related to Covid, its symptoms and preventive measures. The full corpus consisted of 1,339,416 tweets but required extensive preprocessing to make it suitable for our analysis. First, duplicates and retweets were purged from the data. Second, despite all tweets being tagged as Finnish, visual inspection revealed that some were written in other languages. To address this, we used spaCy, a natural language processing library for Python, to automatically detect non-Finnish tweets. We retained only those tweets where at least 50% of the content was identified as Finnish, while the rest were excluded. We also observed that the original dataset was overly broad, containing many tweets irrelevant to our research focus. Therefore, we created a list of search terms and used the stems of these words to filter tweets that contained one or more of these terms, eliminating the rest.[1] This resulted in a final corpus of 374,978 tweets, totalling nearly 8.5 million words from almost 40,000 accounts. Figure 1 below illustrates the distribution of tweets per month in the final corpus. The graph shows a sudden spike in March 2020, as the pandemic fully struck Finland, leading to the imposition of lockdowns.

After building our final corpus, we further processed the tweets to facilitate topic modelling. Tweets were lemmatised using Trankit (Nguyen et al. 2021). We also removed stop words (high-frequency functional words that carry little meaning), punctuation, stand-alone numerical symbols and URLs, as well as very rare words. These preprocessing steps were implemented solely for the purpose of topic modelling. The subsequent qualitative analysis was conducted using the complete, unedited tweets.

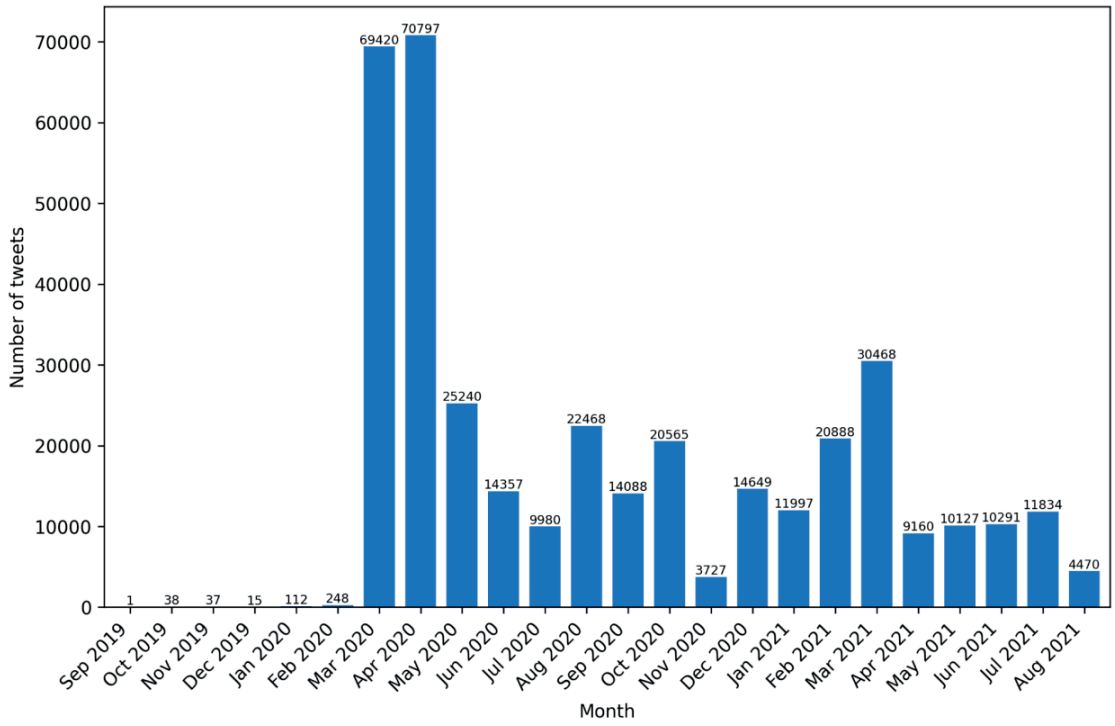

Figure 1. Number of tweets in the corpus

[1] The search terms included the following words: *corona* ('corona'), *covid* ('covid'), *epidemia* ('epidemic'), *karanteeni* ('quarantine'), *korona* ('corona'), *kriisi* ('crisis'), *maski* ('mask'), *pandemia* ('pandemic'), *rokote* ('vaccine'), *rokotus* ('vaccination'), *tartunta* ('infection') and *virus* ('virus').

3.2 Latent Dirichlet Allocation (LDA)

Latent Dirichlet Allocation (LDA) is the most widely adopted method for topic modelling, first introduced by Blei et al. (2003), and also the method we use. In LDA, each document is represented as a distribution over *K* latent topics and each topic is represented by a distribution over words. More simply put, words that often co-occur in a document form a topic, and documents consist of different proportions of these topics. Each document is treated as a "bag-of-words", i.e., only the words and their frequency are considered, but not their order or proximity. We chose to employ LDA due to its prominence in the literature, relative ease of use and transparent operating principle. Other topic model solutions based on deep learning were also considered; however, as, for example, BertTopic leaves a large proportion of documents outside the topic model solution (see Eklund 2025), we decided to use LDA. We implemented LDA using Gensim (Řehůřek & Sojka 2010).

Some hyperparameters must be configured before running the topic model. The most important of these is the number of topics, denoted as *K*. If *K* is too low, the resulting topics will be too general, thereby failing to provide meaningful insights and missing much of the nuance in the corpus. Conversely, a high *K* value can result in topics that overlap and are excessively granular. Two other hyperparameters to consider are α and β, which are the a priori assumptions of document-topic and topic-word distributions, respectively.

To find the best-fitting model for our data, we ran a number of candidate models with 10 to 100 topics at five topic intervals. Following the example of Maier et al. (2018), we also tested different values for α (0.01, 0.05, 0.1, 0.2, 0.5, 1) while keeping β constant (1/*K*). This resulted in 114 candidate models. To identify the best model, we calculated coherence scores for all models. We used all four coherence metrics built into Gensim and found that three of them gave the best score to the model with 10 topics and $\alpha = 0.05$. However, since 10 topics seemed too low considering the size of our corpus, we created graphs of coherence values across different values of *K* and α and noticed that coherence scores began to decline more steeply once *K* surpassed 30 or 40. Thus, we chose the model where $K=35$ and $\alpha=0.05$ as our final model.

Once we had our model, we could begin analysing the discourse topics. The first step in this process was naming each of them. We decided to follow the dual close reading method of Gillings & Hardie (2022). Although the discourse topics generated by the model give us information on what kind of themes were discussed online, we understand that the manual naming process interrupts this automated analysis and may cause subjective biases (van der Meer 2016). The following steps taken by the researchers were aimed at increasing the reliability of the analysis. In the first phase, we independently labelled the discourse topics based on the 20 most prominent keywords associated with each topic. In the second phase, we read 20 tweets that had the highest proportion of the given discourse topic and assigned a name to each tweet. Finally, we compared our discourse topic names, discussed and finalised the topic names. The discursive aspect of the topics was analysed simultaneously with the intersection of discourse topics and evaluation, that is, while examining how the pandemic was discussed.

Since analysing 35 discourse topics comprehensively is not attainable in the context of this study, we formulated eight larger discourse topic groupings from all the discourse topics. The groupings were categorised based on their thematic similarities. For example, discourse topics related to masks and infection rates were placed under the same grouping of health and protective measures (see Table 4 for the discourse topic names and

groupings). For a detailed linguistic analysis, we chose the two largest groupings not only based on their number of discourse topics but also on their evaluative relevance, that is the prominence of evaluation (see Lehti et al. 2020).

3.3 Evaluation

As for the evaluation, the tweets were chosen for analysis based on their topical relevance, meaning that under each discourse topic, we included ten tweets with the highest proportion of the given topic. In total, the manual analysis consisted of 350 tweets. We applied the framework of evaluative parameters by Bednarek (2010), which consists of 12 main parameters and 22 sub-categories for examining evaluative meanings in online discourse. Table 1 summarises the framework and gives a brief definition of each parameter. The definition column also offers hypothetical questions that can be used to support the analysis.

Table 1. Framework of evaluative parameters summarised and edited from Bednarek (2010)

Evaluative parameter	Definition	Sub-category	Examples
Comprehensibility	Evaluation of entities as comprehensible or incomprehensible. Answers questions: How comprehensible or incomprehensible does this appear? How easy or difficult does this appear?	Comprehensible	clearly; easy; in plain language
		Incomprehensible	complex; difficult; mystery
Emotivity	Evaluation of entities as positive or negative. How positive or negative does this appear?	Positive	beauty; peaceful; joyful
		Negative	fiasco; aggressive; wannabe
Expectedness	Evaluation of entities as expected or unexpected. The notion of contrast is also involved. How expected or unexpected does this appear?	Expected	familiar; normally; routine
		Unexpected	extraordinary; unexpected; little wonder that
		Contrast	although; despite; however
Genuineness	Evaluation of entities as real/true or untrue. How real/true or untrue does this appear? How authentic or artificial does this appear?	Real/true	really; genuine; truth
		Untrue	artificial; fantasy; fake

Importance	Evaluation of entities as important, relevant or unimportant, irrelevant. How important or unimportant does this appear?	Important	top; leading; crucial
		Unimportant	modest; minor; insignificant
Necessity	Evaluation of entities as necessary or unnecessary. How necessary or unnecessary does this appear?	Necessary	have to; need to; no choice but
		Unnecessary	shouldn't; useless; unnecessary
Possibility	Evaluation of entities as possible or impossible. How possible or impossible does this appear?	Possible	can; could; possible
		Impossible	can't; couldn't; impossible
Reliability	Evaluation of entities as likely or unlikely. How likely or unlikely does it appear that this will happen?	Likely	certainly; perhaps; potential
		Unlikely	undoubtedly; unlikely; put that in doubt
Causality	Evaluation of entities' causes and consequences. What are the reasons? What are the consequences?	–	therefore
Evidentiality	Evaluation of the basis of information as speech, thought/feeling, expectation, emotion, mental process, perception, proof, general knowledge or unspecific basis. How do we know?	Speech	say
		Thought/feeling	think
		Expectation	expect
		Emotion	hope
		Mental process	speculate
		Perception	there are signs
		Proof	evidently
		(General) knowledge	it's well known that
		Unspecific basis	it emerged that
Style	Evaluation of how something was said as neutral, illocutionary, declarative, discourse signalling or paralinguistic. How was it said?	Neutral	say
		Illocutionary	instruct
		Declarative	acquit
		Discourse signalling	ask
		Paralinguistic	whisper
Mental state	Evaluation of mental states as emotion, volition, belief, expectation or knowledge. What mental states were attributed?	Emotion	glad
		Volition (wishes/ intentions)	refuse
		Belief	convince
		Expectation	expected
		Knowledge	know

We conducted several rounds of analysis with close reading wherein we marked down all the words and expressions including emojis and hashtags indicating evaluative meanings in any way based on the evaluative parameters and their sub-categories presented above (Bednarek 2010). According to Bednarek (2010), the evaluative parameters are hardly definite entities, but they can overlap a single word or expression. For instance, evaluating positively one's mental state can simultaneously result in positive emotivity. Another example could be the close connection between the parameters of possibility and reliability. In this study, we also identified all the possible parameters that were linked to a specific expression. In addition, it is necessary to note that the analysis of evaluation is influenced, to some extent, by the researcher's experimental world and the complexity of emotional language (Bednarek 2008). In the end, it is the researcher who is the interpreter making the decisions concerning the evaluative parameters which are inevitably influenced by their personal experiences (Bednarek 2008). In this study, we took these aspects into account by conducting multiple rounds of analysis to reinforce and reconsider the decisions made, which is possible due to the reasonable amount of data in the qualitative phase. In addition, we solved unclear parts together by discussing them in detail. As mentioned in Section 2, the quantitative method of topic modelling in the initial phase of the analysis also enhances the objectivity of the research.

Regarding the social media actors, we conducted their identification simultaneously with the analysis of the evaluative parameters as it is also essential to understand who is conducting the evaluation (Bednarek 2008). We first identified who posted the tweets. After that, we created user categories based on their similarities (see Table 4 in Section 4.2). The user category was chosen between the following options: private person, public figure, association, organisation or union, political figure or party, news agency or broadcasting company, legislative or institution, company, health and social sector, municipality, other or unidentified. We distinguished between individual users based on their follower counts: social media actors with fewer than 1,000 followers were categorised as private individuals, and actors with more followers were analysed as public figures. After this, we formulated evaluative images that were created at the intersection of discourse topics and evaluative parameters. This means that we analysed their connections with detailed close reading and examined what kind of evaluations were attached to specific thematics. After conducting several analysis rounds, we were able to detect repeating patterns that reflected the pandemic response on a larger scale. To summarise the methods, we outline the steps in Figure 2 below.

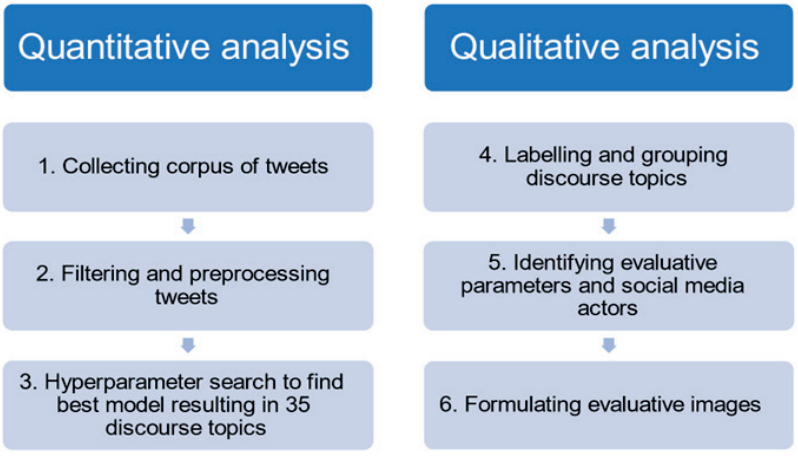

Figure 2. Steps taken in the analysis

In the following chapter, we present the analysis of this study, beginning with the results of the topic model, which include the discourse topics and their groupings. Next, we showcase the distribution of evaluative parameters and the social media actors present in the tweets. Finally, we reveal how the evaluative parameters intersect with the discourse topics by constructing evaluative images.

4 Analysis

4.1 Discourse topics

As detailed in Section 3.2., the best fitting model for our data produced 35 discourse topics. The discourse topics in the order produced by the model (0–34), selected keywords that best describe the topics qualitatively, discourse topic names and eight discourse topic groupings (1–8) are presented in Table 2 below.

Table 2. Discourse topics, selected keywords, discourse topic names and groupings

Discourse topic	Selected keywords	Discourse topic name	Discourse topic grouping
0	*selvitä* 'manage', *voima* 'strength', *yhteistyö* 'collaboration', *lähettää* 'send', *valtava* 'enormous'	Protective measures in healthcare and emotions	(1) Health and protective measures
1	*tänään* 'today', *klo* 'o'clock', *vastata* 'reply', *huomenna* 'tomorrow', *tilaisuus* 'event'	Upcoming briefings, news broadcasts and webinars	(2) Informative announcements, resources and aid for different groups
2	*apu* 'help', *toiminta* 'actions', *perhe* 'family', *tarjota* 'offer', *tukea* 'support'	Associations and organisations offering support services for citizens and advocating for funding	(2) Informative announcements, resources and aid for different groups
3	*käyttää* 'use', *maski* 'mask', *etäisyys* 'distance', *suoja* 'protection', *suojella* 'protect'	Discussing masks and other protective measures	(1) Health and protective measures
4	*käyttö* 'usage', *suositus* 'recommendation', *lääke* 'medicine', *suositella* 'recommend', *määrätä* 'order'	Quarantine, infection rates and making recommendations on mask use	(1) Health and protective measures

5	*uutinen* ‘news’, *viranomainen* ‘authority’, *peruste* ‘excuse’, *arvioida* ‘estimate’, *johtaja* ‘leader’	Tagging the media and authorities to get their attention	(4) Decision-makers
6	*koronavirus* ‘coronavirus’, *määrä* ‘amount’, *kuolla* ‘die’, *tapaus* ‘case’, *nousta* ‘arise’	Infections, deaths and testing	(3) Testing, infections and deaths
7	*koulu* ‘school’, *rajoitus* ‘restriction’, *kaupunki* ‘city’, *opettaja* ‘teacher’, *etäopetus* ‘remote schooling’	Different responses to remote schooling	(5) Education and children
8	*tarvita* ‘need’, *miljoona* ‘million’, *euro* ‘euro’, *merkitys* ‘meaning’, *kriittinen* ‘critical’	Resources and aid to businesses and other entities	(2) Informative announcements, resources and aid for different groups
9	*kannattaa* ‘support’, *näyttää* ‘show’, *onneksi* ‘luckily’, *pääministeri* ‘prime minister’, *presidentti* ‘president’	Prime Minister Marin and President Niinistö managing the crisis	(4) Decision-makers
10	*lapsi* ‘child’, *elämä* ‘life’, *nuori* ‘adolescent’, *pelastaa* ‘save’, *seuraus* ‘consequence’	Well-being of children and youth	(5) Education and children
11	*ohje* ‘instruction’, *noudattaa* ‘obay’, *tehohoito* ‘intensive care’, *ikäihminen* ‘elderly person’, *epäillä* ‘suspect’	Situation reports on number of tests, new cases, hospitalisations and deaths	(3) Testing, infections and deaths
12	*suomi* ‘finland’, *hallitus* ‘government’, *politiikka* ‘politics’, *ministeri* ‘minister’, *eduskunta* ‘parliament’	Political parties	(4) Decision-makers
13	*raja* ‘border’, *uusimaa* ‘uusimaa region’, *alue* ‘area’, *auki* ‘open’, *eristys* ‘isolation’	Closing the border of the Uusimaa region	(1) Health and protective measures

14	*jälkeen* ‘after’, *yhteiskunta* ‘society’, *luoda* ‘create’, *pyrkiä* ‘aim’, *myöhemmin* ‘later’	Past, present and future	(8) Others
15	*toimi* ‘action’, *talous* ‘economy’, *terveys* ‘health’, *huomio* ‘recognition’, *oppia* ‘learn’	Infection, death and impact reports, appreciation for those managing the crisis	(3) Testing, infections and deaths
16	*sanoa* ‘say’, *ostaa* ‘buy’, *tilata* ‘order’, *saapua* ‘arrive’, *asiakas* ‘customer’	Information, experiences and opinions about decisions, events and services	(7) Experiences and opinions
17	*poikkeuksellinen* ‘unexceptional’, *sata* ‘hundred’, *kymmenen* ‘ten’, *uusi* ‘new’, *kuvata* ‘describe’	Infections and deaths in Hungary	(3) Testing, infections and deaths
18	*viikko* ‘week’, *kuukausi* ‘month’, *kolme* ‘three’, *seuraava* ‘next’, *alku* ‘beginning’	Length and timing of things in weeks	(8) Others
19	*yritys* ‘company’, *yrittäjä* ‘entrepreneur’, *valtio* ‘government’, *raha* ‘money’, *maksaa* ‘pay’	Financial support for businesses and entrepreneurs	(2) Informative announcements, resources and aid for different groups
20	*toimia* ‘function’, *helsinki* ‘city of helsinki’ *turku* ‘city of turku’, *idea* ‘idea’, *mahtava* ‘amazing’	Regional actions, opinions and wellbeing	(7) Experiences and opinions
21	*kotona* ‘home’, *päivä* ‘day’, *loppua* ‘end’, *asua* ‘live’, *elää* ‘live’	Quarantine and staying at home	(1) Health and protective measures
22	*pysyä* ‘stay’, *sulkea* ‘close’, *ravintola* ‘restaurant’, *sisällä* ‘inside’, *henkilökunta* ‘staff’	Closing venues and staying at home	(1) Health and protective measures

23	*kysymys* ‘question’, *seurata* ‘follow’, *kysyä* ‘ask’, *vastaus* ‘response’, *vaarallinen* ‘dangerous’	Safety and frequently asked questions	(8) Others
24	*hoitaa* ‘treat’, *lääkäri* ‘doctor’, *hoito* ‘care’, *potilas* ‘patient’, *hoitaja* ‘nurse’	Healthcare and healthcare workers	(1) Health and protective measures
25	*tieto* ‘knowledge’, *löytää* ‘find’, *ohjeistus* ‘instructions’, *koota* ‘gather’, *tiedote* ‘briefing’	Sharing information about benefit subsidies and other support by institutions	(2) Informative announcements, resources and aid for different groups
26	*tutkimus* ‘research’, *osallistua* ‘participate’, *tutkija* ‘researcher’, *opiskelija* ‘student’, *selvittää* ‘examine’	Participation in Covid-19 research	(8) Others
27	*käsi* ‘hand’, *järki* ‘mind’, *pestä* ‘wash’, *muistaa* ‘remember’, *miettiä* ‘think’	Safe distances, hygiene and other people’s behaviours	(1) Health and protective measures
28	*tehtävä* ‘position’, *lomautus* ‘layoff’, *täynnä* ‘full’, *pelko* ‘fear’, *aloittaa* ‘start’	Layoffs, unemployment and getting tired of Covid-19	(6) Work life
29	*eurooppa* ‘europe’, *turva* ‘safety’, *venäjä* ‘russia’, *siirtää* ‘move’, *aika* ‘time’	International affairs, immigration and sports	(8) Others
30	*ruotsi* ‘sweden’, *järjestää* ‘organise’, *lappi* ‘lapland’, *flunssa* ‘cold’, *linja* ‘line’	Swedish response and nature of viruses	(8) Others
31	*riskiryhmä* ‘risk group’, *riski* ‘risk’, *väestö* ‘population’, *ulkomaa* ‘foreign country’, *määräys* ‘regulation’	Healthcare sector and tweets in English	(1) Health and protective measures

32	*oire* ‘symptom’, *tartunta* ‘infection’, *testata* ‘test’, *positiivinen* ‘positive’, *oireeton* ‘symptomless’	Symptoms, lack of symptoms and testing	(3) Testing, infections and deaths
33	*asia* ‘matter’, *hyvin* ‘fine’, *mieli* ‘mind’, *tuntua* ‘feel’, *onnistua* ‘succeed’	Documenting Covid-19 in pictures in the region of Satakunta	(8) Others
34	*työ* ‘work’, *työntekijä* ‘employee’, *kansalainen* ‘citizen’, *työnantaja* ‘employer’, *asiantuntija* ‘specialist’	Remote work, vaccination and fear of economic depression	(6) Work life

As we can note from the table, there are some overlaps between the discourse topic names. This is because the discussions can contain different perspectives on the same theme. For example, staying at home is discussed in topics 4, 21 and 22, but in 4 and 21 it refers more to quarantine from the health point of view. In 22, on the other hand, it is more a result of closing restaurants and concert halls, forcing people to stay inside. In the same way, topics 6, 11 and 32 contain tweets about testing, but it is discussed differently. In 6 and 11, there are testing rates that are represented with numbers, whereas 32 relates more broadly to testing with tweets discussing positive test results. The overlaps also influence the discourse topic groupings visible in Table 2. In the same way, these groupings contain similar discourse topics, but they can discuss them from different angles (see Johansson et al. 2018; Lehti et al. 2020). For instance, grouping 1, Health and protective measures, discusses not only health-related protective measures on a general level, but also on a more specific note from masks and safe distances to quarantine. Grouping 2, Informative announcements, resources and aid for different groups, contains tweets passing information about upcoming events while also guiding people towards different support services. Some groupings are also more evaluative than others. For example, grouping 3, Testing, infections and deaths, often includes statistical information on the ongoing situation and the evaluative tone can be less represented in some of the discourse topics.

As expected, the discussion is predominantly centred around health, which functions as an umbrella topic surrounded by related elements influenced by the crisis. The discussion reveals a variety of measures that different levels of society need to adopt in the face of the pandemic. Simultaneously, personal stories are shared and discussed. Taking our evaluative and discursive standpoint in the current article, we cannot analyse all the groupings in one article. Therefore, from now on, we will focus on the two largest groupings related to health and protective measures (group 1) and informative announcements, resources and aid for different groups (group 2). In addition to size, we chose these groupings based on a close reading of tweets, which showed us a distinct evaluative and discursive output describing the pandemic.

4.2 Evaluative parameters and social media actors

Out of the 350 tweets that were manually analysed, 234 tweets (or 66,9%) contained evaluative elements, and a total of 468 evaluative parameters were identified within the tweets. This means that many tweets featured more than one evaluative parameter. Table 3 illustrates the distribution of these evaluative parameters and their sub-categories, along with translated examples drawn from the data. The distribution of the evaluative parameters shows their division in the whole data, whereas the distribution of the sub-categories represents their division within a single parameter.

Table 3. Distribution of the evaluative parameters

Evaluative parameter	Distribution (%, N=468)	Sub-category	Distribution (%)	Examples
Emotivity	25.9	Negative	58.8	valuable; great; so good; money problems; short-sighted; stupid
		Positive	41.2	
Importance	15.8	Important	100	important; the second highest in history; special; absolutely necessary; big; crucial
Mental state	13.5	Emotion	66.7	good mood; worry; want; wish; unbelievable; know
		Volition	18.2	
		Knowledge	12.1	
		Belief	3.0	
Necessity	11.1	Necessary	79.0	should; need; necessary; no need; not worth it; unnecessary
		Unnecessary	21.0	
Possibility	9.0	Possible	73.8	anyone; can; possibly; there is no returning back; can't; there is no right
		Impossible	26.2	
Evidentiality	5.6	Speech	76.9	say; ask; remind; think; hope; according to
		Thought/feeling	7.7	
		Emotion	7.7	
		Unspecific basis	7.7	
Expectedness	5.1	Contrast	83.3	suddenly; exceptionally; never; instead; although; but
		Unexpected	16.7	

Reliability	4.9	Likely	66.7	certainly; maybe someday; it seems that; is this enough either; does not seem to emerge
		Unlikely	33.3	
Style	4.3	Neutral	55.0	tell; report; recommend; claim; reply; rant
		Illocutionary	30.0	
		Discourse signalling	10.0	
		Paralinguistic	5.0	
Comprehensibility	2.4	Incomprehensible	72.7	understand; self-evident; can't understand; unbelievable; do people really have such short memories; so difficult to understand
		Comprehensible	27.3	
Causality	2.1	–	–	so; if; then; consequently; because; therefore
Genuineness	0.4	Real/true	100	really; orthodox

As shown in Table 3, the evaluative parameter of emotivity is the most dominant type of evaluation in the data, with the sub-category of emotion leading within the parameter of mental state. Given the close relationship between emotivity and mental state (Bednarek 2010), this finding is unsurprising. The presence of negative emotivity can be attributed to several factors. On the one hand, an unknown crisis naturally triggers negative emotions. On the other hand, social media discourse is often described as negativity-driven, where negative emotions tend to foster negativity. However, it is important to note that positive attitudes and emotions are also a firm part of the discourse, for example, when encouraging others. The prominence of these parameters highlights the emotional response to the pandemic among social media actors. This result is in line with previous research that describes social media discussions during crises as emotionally charged and complex (e.g., Johansson et al. 2018). The pandemic was also evaluated through the parameters of importance, necessity and possibility. In these cases, for example, the necessity of different actions and regulations were emphasised, considered or speculated from different perspectives. As for the social media actors, we analysed their presence in the evaluative tweets (N=234). Based on this analysis, we categorised the actors into 11 distinct categories. Table 4 displays these categories along with their respective distributions.

Table 4. Social media actors (N=234)

Social media actor	Distribution (%)
Private person	39.3
Public figure	23.9
Association, organisation or union	5.1
Political figure or party	3.4
News agency or broadcasting company	2.6
Legislative or institution	2.1
Company	1.3
Health and social sector	1.3
Municipality	0.9
Other	1.3
Unidentified	18.8
Total	100

Table 4 shows that private persons are the most prominent social media actors in our data, highlighting the substantial involvement of ordinary citizens in the online discussions surrounding the pandemic. Following them are different public figures who contribute to the discourse. Other social media actors, such as associations, political figures and news agencies, are less prominent. However, it is important to acknowledge that the analysis only considers the number of tweets in the qualitative examination: we only analysed social media actors in the evaluative tweets, offering insight into just a fraction of the overall tweets. Moreover, nearly 19% of the actors remained unidentified, often due to account removals.

4.2.1 Evaluative image 1: Consistent responsibility and emerging emotional reactions

Grouping 1, Health and protective measures, created based on the discourse topics (see Table 2), reflects the multidimensional nature of the global health crisis. The tweets concern health, the healthcare sector (e.g., healthcare workers) and protective measures (e.g., mask use, quarantine, vaccination) aimed at securing hospital capacity and protecting risk groups, among others. In addition, the grouping includes other protective measures and guidelines (e.g., closing venues and borders), with the core idea being the protection of different groups. As explained in Section 3.3, we identified all the parameters that were linked to a word or an expression, meaning that one word can contain several parameters. Therefore, there are 151 main evaluative parameters in total intersecting with the discourse topics. The parameters are versatile (with the discovered sub-categories in parentheses): emotivity accounts for 19.2% (negative; positive), mental state for 19.2% (emotion; volition), necessity for 12.6% (necessary; unnecessary), importance for 10.0% (important), possibility for 9.3% (possible; impossible), evidentiality for 8.0% (speech; thought or feeling; emotion; unspecific basis), expectedness for 6.0% (contrast; unexpected), style for 5.3% (neutral; illocutionary; discourse signalling; paralinguistic),

comprehensibility for 3.3% (incomprehensible; comprehensible) and causality for 2.0%. Based on the intersection of discourse topics in grouping 1 and evaluative parameters, we formulate an evaluative image that highlights the importance of consistent responsibility throughout all levels of pandemic management while complex emotional reactions emerge. We demonstrate the evaluative image with the following examples retrieved from the data.[2] The words and expressions, including emojis, attached to evaluative parameters are in bold, and the social media actor category (see Table 4) is underlined. Usernames, mentions and links are removed from the tweets.

(1) [...] *Asiassa voi käyttää omaa järkeä, koska #koronavirus tarttuu vain pisaratartuntana. #Maski ei suojaa silmiä eikä käsiä, joten siitä ei ole normaalissa elämässä hyötyä. Jos taas joku on niin tyhmä, että yskii minne huvittaa, niin sellaiselle pitäisi pakottaa maski naamalle.*
'[...] One **can** use common sense, because #coronavirus is only transmitted by droplet infection. The #mask doesn't protect eyes or hands, so it's no use in normal life. **If someone is stupid enough to cough wherever they feel like it, they should be forced to wear a mask.**' (Private person)

In Example (1), the private person recommends using common sense regarding mask use, with the almost sarcastic verb *can* reflecting the evaluative parameter of possibility. However, this verb also implies that common sense must be used, which contains the parameter of necessity. The social media actor addresses mask use from two perspectives. Generally, masks are seen as inefficient in daily life. However, the opinionated claim *If someone is stupid enough to cough wherever they feel like it, they should be forced to wear a mask* drastically shifts the point of view. In this case, people who ignore normal behavioural standards, such as coughing without consideration, should be obliged to wear a mask. This is expressed through the parameters of necessity and causality. The strong attitude towards these people also reflects the parameter of negative emotivity.

(2) *HALOO +70 VUOTIAAT 😡 Yli 70-vuotiaat ravaavat edelleen apteekeissa - Apteekkariliitto: "Yli 70-vuotiaiden ei pidä tulla apteekkiin."*
'HELLO PEOPLE OVER 70 😡 **(angry emoji)** Over 70-year olds **are still running** to pharmacies - Pharmacists' Union: "People over 70 **should not come** to the pharmacy."' (Public figure)

Example (2) illustrates how the public figure's tweet embodies the evaluative parameter of negative emotivity. The person makes an intense accusation by evaluating the behaviour of a certain group and leans on an expert statement to reinforce their message. The greeting *hello* compared with an emoji reflecting dissatisfaction casts negative emotivity towards the elderly. The expression, especially the emoji, also reflects the negative mental state the language user experiences regarding the situation. Furthermore, the social media actor contrasts the continuous behaviour of the elderly with *are still running* and a prohibition *should not come*. The combination not only negatively evaluates the situation when

[2] The original tweet in Finnish is presented first followed by our English translation. The Finnish examples are in their original format, and for example, spelling or syntax have not been changed. The English translations seek to follow the Finnish formulations as closely as possible but we acknowledge that, for example, some creativity may still lack from the translations.

something is done despite recommendations but also projects unnecessary actions and emphasises the importance of the statement by the Pharmacists' Union. More precisely, it reflects the evaluative parameters of necessity and importance.

(3) *[...] Halasin läheistä ystävää pari päivää sitten, kun hänellä oli niin paha ahdistus päällä. Sitä edeltävästä kerrasta onkin sit noin kymmenen vuotta. 10v elänyt sopivaa koronakaranteenia ja sit heti ku korona päällä ni pitää mennä rikkomaan sääntöjä. Huoh. Oon huono.*
'[...] I hugged a **close** friend a couple of days ago when they were having **such bad** anxiety. It's been about ten years since the last time. 10 years of living in an appropriate quarantine and then as soon as the coronavirus is on I have to go and break the rules. **Ogh**. **I'm bad**.' (Private person)

(3) shows how the private person evaluates their personal life and relationships with emotional evaluations. A friend is described as *close,* which conveys affection, thus the parameter of positive emotivity and also the parameter of importance. Furthermore, the negative mental state of the friend's anxiety is emphasised with *such bad*. The social media actor also comments on their behaviour concerning the pandemic restrictions by stating, *Ogh, I'm bad,* which echoes both the parameters of negative mental state and negative emotivity.

(4) *[...] Pointti on hoitajien työturvallisuus. Eikö? Ei ihme nokittelu siitä, mistä suojaimet ovat peräisin. Kuten twiittasin: On ehdottoman tärkeää, että etulinjan hoitajien huoli otetaan vakavasti. #korona #tehy*
'[...] The point is the safety of nurses. Right? Not the **weird bickering** on where the protective gear comes from. As I tweeted: It is **absolutely critical** that the concerns of nurses working the frontline **are taken seriously**. #corona #tehy [a union for health and social care professionals]' (Public figure)

Finally, in (4), the public figure adopts a defensive and commending attitude towards nurses working at the forefront of the health crisis. The social media actor evaluates the ongoing discussions through the evaluative parameter of negative emotivity as *weird bickering* and reminds that the concerns of those in the healthcare sector should be listened to with the expressions *absolutely critical* and *are taken seriously,* thus showing the parameters of necessity and importance.

To summarise, the evaluative image is most prominently characterised by a responsibility discourse. This discourse emphasises the importance of consistent responsibility throughout all levels of pandemic management while complex emotional reactions emerge. The discourse arises in situations where, for example, an individual's actions are highlighted in pandemic management or others' behaviour is criticised with the parameters of importance, emotivity and mental state. Actors can lean towards expert statements to better support their message and sometimes speak through experts to guide others towards desirable behaviour. The responsibility discourse also contrasts an ingroup of reasonable citizens who wear masks with an outgroup of ignorant people who do not. Similarly, when negatively evaluating others' behaviour, there is an impression of "us" who follow the rules versus "them" who do the opposite. According to the examples,

there exists a counter-discourse in which claims about the inefficiency of masks and comments about the absurdity of the state of affairs emerge. However, private persons share pieces of their experimental world at the heart of the pandemic. They can, for example, criticise their actions and share both positive and negative emotions caused by their behaviour. In addition, support for healthcare workers is also visible. Employees are portrayed as essential components of crisis management who work at the forefront of the pandemic. Social media actors not only appreciate their work effort but also emphasise the importance of supporting and protecting employees in their work.

4.2.2 Evaluative image 2: Support for groups suffering the most

Moving on to the discourse topics of grouping 2, called Informative announcements, resources and aid for different groups, which illustrates the informative yet evaluative nature of online discourse during crises, when different groups are being reached through social media. The tweets are related to informative announcements (e.g., briefings, webinars), resources (e.g., funding opportunities) and aid (e.g., discussion possibilities) for various groups, including families, children, people with mental health challenges, companies and entrepreneurs. Altogether, there are 69 main evaluative parameters linked to the discourse topics covering informative announcements, resources and aid for different groups. The following parameters intersect with these discourse topics (with visible sub-categories in parentheses): importance accounts for 29.4% (important), emotivity for 26.5% (negative; positive), necessity for 17.7% (necessary; unnecessary), possibility for 8.8% (possible; impossible), mental state for 4.4.% (emotion; volition), expectedness for 4.4% (contrast), evidentiality for 2.9% (speech); style for 2.9% (neutral; illocutionary) and reliability for 2.9% (likely; unlikely). Based on the intersection of discourse topics in grouping 2 and evaluative parameters, we create an evaluative image that accentuates the meaning of support for those groups who suffer the most. We demonstrate the evaluative image with the following examples.

(5) *Nyt jos koskaan tarvitaan resursseja #mielenterveys-, #perhe-ja #sosiaalityö'n. Apua on tarjolla myös järjestöissä. Me #FinFami'ssa kehitämme jatkuvasti etäpalveluita, jotta #mielenterveysomaiset saavat tukea #korona'pandemian aikana #perherauhanturvaajat [...]*
'It is now or never that resources for #mentalhealth-, #family-and #socialwork **are needed**. Help from organisations is also available. **We at #FinFami are constantly developing** remote services so that #mentalhealthrelatives get support during the #corona'pandemic #familypeacekeepers [...]' (Public figure)

In Example (5), the public figure working in FinFami, a Finnish Central Association of Families of People with Mental Illness, advocates additional resources for mental health, families and social work with the emphatic phrase *It is now or never.* This expression contains the parameters of necessity and importance. It reflects not only the urgent need for resources even before the crisis but also their significance during the pandemic, which has hit especially hard on citizens already struggling, such as those with mental health issues. Furthermore, with the statement *We at #FinFami are constantly developing*, the social media actor accentuates the association's role in the development of much-needed support services, indicating the parameter of importance.

(6) *Järjestökenttä on ketterä matalan kynnyksen toimija. Järjestöt tuovat apua ja tukea monen arkeen. Koronakriisiajoista selvämisessä* järjestöjen apu korvaamatonta. Sotejärjestöille jaossa ylimääräisiä avustuksia avun toteuttamiseksi. *#korona #järjestöt*
'The organisation field is an **agile, low-threshold** actor. Organisations bring help and support to the daily lives of many. To get through times of crisis, the help from organisations is **indispensable. Additional** support will be distributed to social and healthcare organisations to implement their aid. #corona #organisations' (Political figure or party)

Similar to the above, the political figure or party in (6) firmly supports the work of organisations and the field in general. The tweet reflects the parameters of importance and positive emotivity through appreciative adjectives. The field is described as *agile* and *low-threshold,* portraying organisations as actors that can effortlessly function and achieve results even in a crisis. The social media actor continues praising the help from organisations with the evaluative adjective *indispensable,* indicating that the work of social and healthcare organisations in crisis management is crucial and could not be replicated by others. Finally, the adjective *additional* emphasises the importance of the support provided.

(7) *#Yksinäisyys, rahahuolet ja parisuhteen riidat repivät vanhempia nyt jaksamisen* ääririrajoille. *Me tarjoamme matalan kynnyksen apua myös perheille ja nuorille, ota rohkeasti yhteyttä: [...] #koronafi #lapsiperheet #perhearki [...]*
'#Loneliness, **financial concerns** and relationship arguments are now **tearing** parents **over the limit. We** also **offer low-threshold** help for families and adolescents, **we encourage you** to contact us: [...] #coronafi #familieswithchildren #familydailylife [...]' (Association, organisation or union)

Example (7) reflects both the parameters of negative and positive emotivity. Initially, the association, organisation or union evaluates daily worries such as *financial concerns* and their significant impact on parents, describing them as *torn over the limit*. However, the following positive offer changes the tone of the tweet. The social media actor promotes *low-threshold* aid and encourages the target reader, such as a family member, to contact the services offered. Moreover, the use of pronouns impacts the evaluation. The expression *We offer* emphasises the organisational role, echoing the parameter of importance. At the same time, the direct address *we encourage you* creates a sense of approachability and a safe space for contact, showing positive emotivity.

The evaluative image reflects a dominant supportive discourse, which accentuates the meaning of support for those groups who suffer the most. In this case, the needs of families already struggling with different social problems are taken into consideration. Tweets by healthcare organisations and associations that advertise support services and encourage people to use them seek to reach concerned families. However, the emphasis on support also serves as a reminder that the pandemic primarily affects groups that are already struggling. Communication is often realised through organisations and associations that present themselves as active crisis operators through the parameters of importance and emotivity. As the examples indicate, the discourse is built with communal words and expressions that echo emotivity and further illustrate the sense of collective experience.

However, the supportive discourse by professionals can also be viewed critically from a marketing perspective, as it may advocate their professional purposes and polish their crisis image.

5 Conclusion

The study of social media discourse can reveal important strings of discussions as well as value-laden discourses that might otherwise remain unstated. Our study builds on previous scholarship on evaluative language, offering insights from both computational and linguistic perspectives into the attitudes and emotions towards the Covid-19 pandemic represented online. In this article, we conducted a corpus-assisted discourse study using a large corpus, combining topic modelling with evaluative parameters. We analysed discourse topics during the Covid-19 pandemic over a 1.5-year period and examined how the main discourse topics were evaluated by social media actors. Evidently, health served as an umbrella topic in our data, but various other strings of discussion emerged, ranging from measures that different levels of society needed to adopt to personal stories. Most importantly, our profound analysis uncovered how two primary evaluative images emerged on Twitter. First, the pandemic is depicted as a crisis that highlights the importance of consistent responsibility across all levels of pandemic management, accompanied by complex emotional reactions. In this image, the role of an individual's actions is clearly highlighted. At the same time, an opposition between citizens who obey the regulations and citizens who overlook and disregard them emerges. Second, the pandemic is portrayed as a crisis that emphasises the significance of supporting those who suffer the most. As a result, the image renders a sense of community.

These images characterise the multilayered nature of the pandemic, both online and in real life. It is important to acknowledge that the images are not separate entities from each other, but they also have similarities between them. For example, emotive response spans through both images, which has also been identified in previous work (see e.g., Fiskvik et al. 2023). We consider that promoting a positive tone online functioned as an important resource to citizens during uncertain times. Consequently, we propose that the Finnish Twitter-sphere served as a collective space in times of social isolation during which social media actors could share their diverse attitudes and opinions with others. To our knowledge, earlier studies have not examined evaluative images in the Finnish context as such. However, there is evidence that, for example, support was a prominent feature in Twitter in the Nordic countries during the pandemic (see e.g., Fiskvik et al. 2023; Lindholm et al. 2023), which correlates with our findings of responsible and supportive discourse in the evaluative images. In fact, the pandemic response online reflected the situation's complexity, necessitating profound accountability and support across different layers of society.

Our study guides us in understanding how the pandemic was represented online and how it might have influenced other social media actors' perceptions of the crisis. Given the context of the pandemic, it is essential to comprehend how this global health crisis was discussed on a national level. Our results could help decision-makers and authorities in Finland better grasp the themes covered on social media and reflect whether there were some aspects that should have been more visible, such as recommendations communicated by the authorities. For example, the findings suggest that a significant part of the social media actors discussing the pandemic in our data were private persons, which can raise

concerns about the objectives of the discussion. Furthermore, the results give insights into value-laden discourses surrounding socially significant events, which could be valuable for managing future crises (see e.g., Lindholm et al. 2023). Additionally, political parties, authorities and other less-represented actors could reflect on their roles in social media discussions during crises. On the other hand, the results may particularly benefit ordinary citizens who engaged in pandemic discussions. Finally, our findings could be of interest to scholars examining the global evaluative response to the pandemic.

Although our research covers pandemic-related discourse over a lengthy period, future studies could concentrate more closely on the pandemic thematics from the perspective of time, for instance, how discourse topics evolve over time. Furthermore, we only focused on the two largest groupings of the discourse topics generated by the topic model. Future studies could take into account all the topics and their groupings for a detailed qualitative analysis. Another avenue for research could involve analysing the evaluative output by including more data to reveal changes in attitudes and emotions, such as in response to new regulations. This should be done by taking into consideration the censorship that took place online around the pandemic-related discourse (Niemiec 2020; Shir-Raz et al. 2023). Finally, since the ways we discuss and evaluate significant events directly influence public perception (Gearhart & Kang 2014; Seeger & Sellnow 2016), it would be beneficial to take a closer look at how attitudes and emotions have taken shape, developed and changed in response to social media discourse and content.

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Abbreviations

CADS	Corpus-Assisted Discourse Studies
LDA	Latent Dirichlet Allocation

References

Bednarek, Monika. 2008. *Evaluation in media discourse: Analysis of a newspaper corpus.* London and New York: Continuum.

Bednarek, Monika. 2010. Evaluation in the news. A methodological framework for analysing evaluative language in journalism. *Australian Journal of Communication* 37(2). 15–50.

Bednarek, Monika & Caple, Helen. 2012. *News discourse.* London: Bloomsbury.

Bednarek, Monika & Ross, Andrew, S. & Boichak, Olga & Doran, Y. J. & Carr, Georgia & Altmann, Eduardo, G. & Alexander, Tristram, J. 2022. Winning the discursive struggle? The impact of a significant environmental crisis event on dominant climate discourses on Twitter. *Discourse, Context & Media* 45. 1–13. https://doi.org/10.1016/j.dcm.2021.100564

Biber, Douglas & Finegan, Edward. 1989. Styles of stance in English: Lexical and grammatical marking of evidentiality and affect. *Text – Interdisciplinary Journal for the Study of Discourse* 9(1). 93–124.

Blei, David & Ng, Andrew & Jordan, Michael. 2003. Latent dirichlet allocation. *Journal of Machine Learning Research* 3. 993–1022.

Eklund, Anton. 2025. *Evaluating document clusters through human interpretation.* Umeå: Umeå University. (Doctoral dissertation.)

Fiskvik, Jannicke & Vik Bjarkø, Andrea & Grøtan, Tor Olav. 2023. Vaccine rhetoric, social media, and dissensus. An analysis of civic discourse between Norwegian health authorities and citizens on Facebook and Twitter during crisis. In Johansson, Bengt & Ihlen, Øyvind & Lindholm, Jenny & Blach-Ørsten, Mark (eds.), *Communicating a pandemic. Crisis management and Covid-19 in the Nordic countries,* 241–260. University of Gothenburg: Nordicom. https://doi.org/10.48335/9789188855688-11

Gearhart, Sherice & Kang, Seok. 2014. Social media in television news: The effects of Twitter and Facebook comments on journalism. *Electronic News* 8(4). 243–259. https://doi.org/10.1177/1931243114567565

Gillings, Mathew & Hardie, Andrew. 2022. The interpretation of topic models for scholarly analysis: An evaluation and critique of current practice. *Digital Scholarship in the Humanities* 38(2). 530–543. https://doi.org/10.1093/llc/fqac075

Halliday, M. A. K. & Matthiessen, Christian, M. I. M. 2014. *Halliday's introduction to functional grammar* (4th ed.). London: Routledge.

Harambam, Jaron & Voss, Ehler. 2023. The corona truth wars: Epistemic disputes and societal conflicts around a pandemic — An introduction to the special issue. *Minerva* 61. 299–313. https://doi.org/10.1007/s11024-023-09511-1

Hunston, Susan & Thompson, Geoffrey. 2000. *Evaluation in text: Authorial stance and the construction of discourse.* Oxford: Oxford University Press.

Jacobs, Thomas & Tschötschel, Robin. 2019. Topic models meet discourse analysis: a quantitative tool for a qualitative approach. *International Journal of Social Research Methodology* 22(5). 469–485. https://doi.org/10.1080/13645579.2019.1576317

Jallinoja, Piia & Vento, Eetu & Väliverronen, Esa. 2024. Trust in scientific institutions and experts during the first 2 years of the COVID-19 pandemic in Finland. *Scandinavian Journal of Public Health* 53(5), 490–497. https://doi.org/10.1177/14034948241289633

Jallinoja, Piia & Sivelä, Jonas & Väliverronen, Esa. 2021. Valtavirtaa ja vastavirtaa – koronanäkemykset yhteydessä halukkuuteen ottaa koronarokotus. *Duodecim* 137(19). 2061–2068.

Johansson, Marjut, Kyröläinen, Aki-Juhani, Ginter, Filip, Lehti, Lotta, Krizsán, Attila & Laippala, Veronika. 2018. Opening up #jesuisCharlie anatomy of a Twitter discussion with mixed methods. *Journal of Pragmatics* 129. 90–101. https://doi.org/10.1016/j.pragma.2018.03.007

Knight, Naomi. 2010. Wrinkling complexity: Concepts of identity and affiliation in humour. In Bednarek, Monika & Martin, James, R. (eds.), *New discourse on language: Functional perspectives on multimodality, identity, and affiliation,* 35–58. London and New York: Continuum.

Lachlan, Kenneth, A. & Spence, Patric, R. & Lin, Xialing & Del Greco, Maria. 2014. Screaming into the wind: Examining the volume and content of tweets associated with Hurricane Sandy. *Communication Studies* 65(5). 500–518. https://doi.org/10.1080/10510974.2014.956941

Lehti, Lotta, Luodonpää-Manni, Milla, Jantunen, Jarmo Harri, Kyröläinen, Aki-Juhani, Vesanto, Aleksi & Laippala, Veronika. 2020. Commenting on poverty online: A corpus-assisted discourse study of the Suomi24 forum. *SKY Journal of Linguistics* 37. 7–47.

Lindholm, Jenny & Carlson, Tom & Albrecht, Frederike & Hermansson, Helena. 2023. Communicating Covid-19 on social media. Analysing the use of Twitter and Instagram by Nordic health authorities and prime ministers. In Johansson, Bengt & Ihlen, Øyvind & Lindholm, Jenny & Blach-Ørsten, Mark (eds.), *Communicating a pandemic. Crisis management and Covid-19 in the Nordic countries,* 149–172. University of Gothenburg: Nordicom. https://doi.org/10.48335/9789188855688-7

Logi, Lorenzo & Zappavigna, Michele 2021. A social semiotic perspective on emoji: How emoji and language interact to make meaning in digital messages. *New Media & Society* 25(12). 3222–3246. https://doi-org.ezproxy.utu.fi/10.1177/14614448211032965

Maier, Daniel & Waldherr, Annie & Miltner, Peter & Wiedemann, Gregor & Niekler, Andreas & Keinert, Alexa & Pfetsch, Barbara & Heyer, Gerhard & Reber, Ueli & Häussler, Thomas & Schmid-Petri, Hannah & Adam, Silke. 2018. Applying LDA topic modeling in communication research: Toward a valid and reliable methodology. *Communication Methods and Measures* 12(2–3). 93–118. https://doi.org/10.1080/19312458.2018.1430754

Martin, Brian. 2021. Covid information struggles. *Social Epistemology Review and Reply Collective* 10(7). 16–26.

Martin, James, R. & White, Peter. 2005. *The language of evaluation: Appraisal in English.* London: Palgrave Macmillan.

Murakami, Akira & Thompson, Paul & Hunston, Susan & Vajn, Dominik. 2017. What is a corpus about?: Using topic modelling to explore a specialised corpus. *Corpora* 12(2). 243–277. https://doi.org/10.3366/cor.2017.0118

Mykkänen, Markus & Patron, Anri & Badham, Mark & Valentini, Chiara. 2024. Leveraging NLP for crisis communication management: A case study of news media analysis of the COVID-19 pandemic in two Nordic countries. *Journal of Contingencies and Crisis Management* 32(3). 1–19. https://doi.org/10.1111/1468-5973.12611

Nguyen, Minh, Van & Lai, Viet, Dac & Veyseh, Amir, Pouran, Ben & Nguyen, Thien, Huu. 2021. Trankit: A light-weight transformer-based toolkit for multilingual natural language processing. In *Proceedings of the 16th Conference of the European Chapter of the Association for Computational Linguistics: System Demonstrations.*

Niemiec, Emilia. 2020. COVID-19 and misinformation: Is censorship of social media a remedy to the spread of medical misinformation? *EMBO Reports* 21(11).

Partington, Alan & Duguid, Alison & Taylor, Charlotte. 2013. *Patterns and meanings in discourse: Theory and practice in corpus-assisted discourse studies (CADS).* Amsterdam: John Benjamins.

Pälli, Pekka & Lillqvist, Ella. 2020. Diskurssianalyysi. In Luodonpää-Manni, Milla & Hamunen, Markus & Konstenius, Reetta & Miestamo, Matti & Nikanne, Urpo (eds.), *Kielentutkimuksen menetelmiä I–IV*, 374–411. Helsinki: Finnish Literature Society. https://doi.org/10.21435/skst.1457

Řehůřek, Radim & Sojka, Petr. 2010. Software framework for topic modelling with large corpora. In *Proceedings of the LREC 2010 Workshop on New Challenges for NLP Frameworks.*

Saarni, Jenna & Laippala, Veronika. 2024. Health crisis communication in Finnish news media: Evaluative images of the Covid-19 pandemic in digital news headlines. *Nordicom Review* 45(1). 114–136. https://doi.org/10.2478/nor-2024-0015

Seeger, Matthew & Sellnow, Timothy, L. 2016. *Narratives of crisis: Telling stories of ruin and renewal*. Stanford: Stanford University Press.

Shir-Raz, Yaffa & Elisha, Ety & Martin, Brian & Ronel, Natti & Guetzkow, Josh. 2023. Censorship and suppression of Covid-19 heterodoxy: Tactics and counter-tactics. *Minerva* 61. 407–433. https://doi.org/10.1007/s11024-022-09479-4

Smyrnaios, Nikos & Ratinaud, Pierre. 2017. The Charlie Hebdo attacks on Twitter: A comparative analysis of a political controversy in English and French. *Social Media + Society* 3(1). 1–13. https://doi.org/10.1177/2056305117693647

Spence, Patric, R. & Lachlan, Kenneth, A. & Lin, Xialing & del Greco, Maria. 2015. Variability in Twitter content across the stages of a natural disaster: Implications for crisis communication. *Communication Quarterly* 63(2). 171–186. https://doi.org/10.1080/01463373.2015.1012219

Spencer, Anthony. 2023. International communication. In Croucher, Stephen, M. & Diers-Lawson, Audra (eds.), *Pandemic communication*, 215–230. London: Routledge.

Törnberg, Anton & Törnberg, Petter. 2016a. Combining CDA and topic modeling: Analyzing discursive connections between Islamophobia and anti-feminism on an online forum. *Discourse & Society* 27(4). 401–422. https://doi.org/10.1177/0957926516634546

Törnberg, Anton & Törnberg, Petter. 2016b. Muslims in social media discourse: Combining topic modeling and critical discourse analysis. *Discourse, Context & Media* 13. 132–142. https://doi.org/10.1016/j.dcm.2016.04.003

van der Meer, Toni, G. L. A. 2016. Automated content analysis and crisis communication research. *Public Relations Review* 42(5). 952–961. https://doi.org/10.1016/j.pubrev.2016.09.001

van Dijk, Teun A. 1977. Sentence topic and discourse topic. *Papers in Slavic Philology* 1. 49–61.

van Dijk, Teun A. 1980. *Macrostructures: An interdisciplinary study of global structures in discourse, interaction, and cognition.* New Jersey: Lawrence Erlbaum Associates.

van Dijk, Teun A. 1997. Introduction: The study of discourse. In van Dijk, Teun (ed.), *Discourse Studies: A Multidisciplinary Introduction*, 1–7. London: SAGE.

White, Peter. 2002. Appraisal. In Verschueren, Jef & Östman, Jan-Ola & Blommaert, Jan (eds.), *Handbook of pragmatics,* 1–27. Amsterdam: John Benjamins.

Zappavigna, Michele. 2012. *Discourse of Twitter and social media: How we use language to create affiliation on the web*. London: Bloomsbury.

Zappavigna, Michele. 2014. Enacting identity in microblogging through ambient affiliation. *Discourse & Communication* 2. 209–228. https://doi.org/10.1177/1750481313510816

Zappavigna, Michele. 2017a. Evaluation. In Hoffmann, Christian, R. & Bublitz, Wolfram (eds.), *Pragmatics of social media,* 435–458. Berlin and Boston: De Gruyter Mouton.

Zappavigna, Michele. 2017b. Twitter. In Hoffmann, Christian, R. & Bublitz, Wolfram (eds.), *Pragmatics of social media,* 201–224. Berlin and Boston: De Gruyter Mouton.

Zappavigna, Michele & Dreyfus, Shoshana. 2022. "In these pandemic times": The role of temporal meanings in ambient affiliation about COVID-19 on Twitter. *Discourse, Context & Media* 47. 1–11. https://doi.org/10.1016/j.dcm.2022.100595

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