Covid-19 representations in Italian newspapers: A text-based analysis

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Abstract

The paper presents the results of an analysis aimed at mapping the themes through which covid-19 is represented in some Italian newspapers and the semantic structure that grounds and shapes the content of those themes. For this purpose, the ACASM (Automated Co-occurrence Analysis for Semantic

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Mapping) procedure was used and applied to a text corpus consisting of a set of national newspaper articles balanced by source, political orientation and publication period. The results show that Italian newspapers represented the pandemic according to four specific themes based on two semantic structures. The implications of these results are discussed.

Keywords: representations of covid-19, frame, theme, text analysis, ACASM.

Introduction

The media played a central role in informing the public during the spread of covid-19 (Sowden *et al.*, 2021), since its first detection in late December 2019 in the city of Wuhan in China (Chen *et al.*, 2020). Covid-19 has been the most discussed disease in human history (Tsoy *et al.*, 2021) and the pandemic has been labelled as "infodemic" due to exceptional media coverage (World Health Organization, 2020). It is now recognised that the media plays a key role in providing lenses that shape personal experiences and attitudes (Sowden *et al.*, 2021), reflecting and reinforcing cultural conventions along with the sense-making process (Weaver & Jackson, 2012) and playing an important role in the construction of risk perceptions in the population due to the large availability of data (Chong & Choy, 2018). The media act as a repository of resources for understanding and everyday practices, as they represent a tool for the social construction of shared beliefs, feelings and worldviews – due to their specific functioning and their specific language (Mazzara *et al.*, 2021).

In the context of the covid-19 pandemic, the amount of data and interpretations given to the population allowed mass media to promote implicit or explicit interpretative frames about the health emergency (Crabu *et al.*, 2021) and that is why the representation of covid-19 shaped by the media has important societal implications. Therefore, newspaper articles represent a powerful resource for the understanding of how societies conceive the origin of an outbreak (Crabu *et al.*, 2021). To date, many newspaper articles have been analysed using different approaches. Some authors used van Dijk's critical discourse analysis (CDA; 2005) to identify the representations, discourse

structures, and strategies used in representing covid-19. For example, Chaiuk and Dunaievska (2020) found that editorials, headlines, and newspaper articles emphasised the global nature of the pandemic and the inadequacy of government measures to contain the disease; Osisanwo (2022) underlined ten strategies of representation (e.g., economic cancer, a threat to human beings, common enemy), six discursive strategies (e.g., demonising, criminalising, condemning) and twelve ideological discursive structures (e.g., description of the actor, authority, burden) and different participant representations and roles (e.g., solver, potential super spreader). Dezhkameh and colleagues (2021), through van Dijk's (2009) ideological square framework, investigated the ideological differences in reporting the news related to the pandemic, showing that evidentiality, hyperbole, metaphor, national self-glorification, negative lexicalisation, and numbers game were the most frequent micro-strategies used to manipulate readers' minds. Using a corpus-driven analysis of news about covid-19 in a Malaysian online newspaper, Mohd Nor and Zulcafli (2020) pointed out that the latter reflected fear, anxiety, and uncertainty just like the majority of Malaysians and portrayed the government to be in total control of the situation, despite the threat to health and economic situation of the country.

Another perspective used in the study of media discourse is that of the framing theory. Framing refers to the process by which people develop a particular conceptualisation of a matter or reorient their thinking about a matter (Chong & Druckman, 2007). As stated by Entman (1993), «To frame is to select some aspects of a perceived reality and make them more salient in a communicating context, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described» (p. 52).

More specifically, in communication studies the concept of frame is used for its ability to explain the connection between the content of the message and the psychological mechanisms involved in the influence of the media (Mazzara *et al.*, 2021). In fact, it has already been used in different fields, such as climate change (e.g., Anshelm & Hultman, 2014; Knight & Greenberg, 2011; Stecula & Merkley, 2019), public opinion (e.g., Fine, 1992; Lecheler & de Vreese, 2012), economy (e.g., Martin, 2016), so it can also be adopted to analyse the role played by the media in shaping public opinion about covid-19.

Researchers found different frames of covid-19 conveyed by the media in different countries: while some media shaped representations of the disease in terms of darkness, hope, precaution and frustration in different proportions (Ogbodo *et al.*, 2020), others distinguished a scientific frame focused on symptoms and health effects, a containment frame focused on attempts to lessen risks, and a social frame focused on political and social impact (Ophir *et al.*, 2021). Poirier and colleagues (2020) found that Canadian media covered the crisis extensively; specifically, the francophone media framed the pandemic more as a health and economic emergency, while the anglophone media more frequently used the frames of the Chinese epidemic and the social impact of the pandemic. Rodelo's (2021) study of Mexican newspapers found that attribution of responsibility, human interest and political actions were the main frames conveyed by newspapers to interpret the reality of the covid-19 pandemic while, at the same time, scientific information and self-efficacy were left in the background. After analysing nine-week reports from one of China's leading media outlets, Gui (2021) found a dominant frame related to war, which, however, did not remain constant. In fact, some semantic concepts, such as the type of war, have evolved over time. The author also observed the presence of several minor frames, such as racing, challenge, chess and the "combination blow", which, however, were not as dominant as the war-related frame. Racing refers to the need to take fast actions; challenge refers to people's need to strive in order to fight the pandemic; chess and combination blow refer to the fact that a wrong move/blow can lead to failure in dealing with the pandemic. Such frames, however, were not as dominant as the war-related frame.

These works have a common feature: they focus on frames by understanding them as specific and contingent meanings attributed to the phenomenon studied (in this case covid-19). However, such a focus does not allow to highlight the structure of cultural generalized meanings grounding such specific and contingent meanings. Therefore, this paper aims to overcome this constraint by investigating, on the one hand, the frames conveyed by the media within the Italian context; on the other hand, by identifying the generalized cultural meanings that organize such frames. For this purpose, the perspective of the Semiotic Cultural Psychology Theory (SCPT; Salvatore, 2016; Valsiner, 2007) is adopted. The SCPT conceives frames as a stable pattern of meaning

that makes some features/qualities of the represented topic (e.g., covid-19) pertinent and leaves others in the background. In other words, frames do not consist of specific and circumscribed meanings attributed to covid-19 (e.g., "covid-19 contagion has decreased in the last period"; "the incidence of mental illness caused by covid-19 is X%") and/or statements about discrete events and facts that may be associated with this phenomenon. Rather, a frame is a pattern of meanings that functions as a semantic context that shapes the interpretation of meaning of the discrete representative elements associated with it. Frames, in turn, are based on the semantic structures that organize them, which represent the basic components through which a given object is represented (Rochira *et al.*, 2020; see next section).

Framework

According to SCPT, a certain topic is represented according to a stable pattern of meaning that foreground a subset of characteristics/qualities, thus leaving others in the background. Such a pattern of meaning can be modelled in terms of thematic nucleus (henceforth: theme[s]) that make certain links between qualities of the topic relevant. In this way, each theme performs a double framing role: on the one hand, it extracts the relevant reality from the possible worlds; on the other hand, it provides a semantic map of the relevant reality extracted, channelling the audience's way of feeling, thinking, and thus acting. It is worth noting that a theme is a network of meanings related to each other, rather than a specific semantic content associated with a single quality. Consequently, the meanings that make up the theme acquire significance because of their position within the network: for example, in the context of the theme/frame "identity," cultural differences could be interpreted as a challenge to group stability; while in the context of the theme/frame "innovation", cultural difference could be interpreted as a source of development. The themes are in turn grounded and shaped by an underpinning semantic structure. The semantic structure can be modelled as a set of basic semantic components: each semantic component maps a quality of the object represented- a theme consists of the presence or absence of the qualities that the semantic components make relevant (Salvatore *et al.*, 2012). More specifically, each semantic component

takes the form of a dichotomy whose poles are characterised by two oppositional meanings connected with each other in a dialectical relationship. In any given context and at a given moment, one pole is made salient while the other is neutralised (Rochira *et al.*, 2020). For example, take the semantic component |good|: to represent something as good is ipso facto to affirm that it is not bad.

Aims

The media representation analysis is designed to map the themes in terms of which the media frame the meaning of covid-19 and the semantic structure that grounds and shapes the content of such themes. Specifically, this study aims to: (a) identify the themes that emerge from media discourses on covid-19; (b) identify the basic semantic structure underpinning the themes; (c) examine whether and to what extent the semantic structure are or are not similar over time and across the spectrum of media political orientations. These objectives are important on a theoretical and practical level. On a theoretical level, they represent a contribution to the empirical analysis of the challenging issue of the relationship between the outputs (i.e., the contents) and organisational principles (i.e., the semantic structures) of social meaning-making processes (Salvatore & Venuleo, 2013). On a practical level, the benefit of the analysis of the relationship between the media's political orientation and the semantic structure is that it allows to understand if differences between political orientation of the newspapers are an expression of – and fuelled by – deep distances at the level of semantic structure or are a variation within the same semantic structure.

Method

Data source

Analyses were performed on the textual corpus consisting of a set of articles of national newspapers balanced for the political orientation of the source (center/left vs. center/right-wing) and period (18 time units were defined, each corresponding to a week). The sample was

built by means of the following procedure. First, a set of keywords (coronavirus, covid, epidem*, pandem*) being able to detect articles addressing the covid-19 as main topic were identified. This was carried out by means of a series of preliminary frequency analyses on a pre-selected set of articles that independent raters had considered focused on covid-19. Second, the keywords thus identified were applied to the whole dataset of articles published from January to May 2020 on a group of 9 Italian national newspapers (*Repubblica*, *Il Manifesto*, *La Nazione*, *L'Avvenire*, *Corriere della Sera*, *Italia Oggi*, *Libero*, *Il Sole 24 Ore*, *Lettera 43*). These sources were based on two criteria: (a) they provide a broad enough coverage of the spectrum of cultural and political orientation of the Italian press; (b) they provide an easy access to the digital format of articles. Finally, for each newspaper x week block of the sample, 15 articles were randomly selected from the whole universe of articles obtained from the previous step. Thus, the sampled textual corpus consisted of 1700 articles (it must be noted that in the case of some blocks, the expected number of articles was not reached). Table 1 shows the distribution of the articles per week and newspaper.

Table 1. Distribution of the selected articles per time block and type of newspaper (C/L = center/left wing political orientation, C/R = center/right wing, C = centre).

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
		01-05 Jan	06-12 Jan	13-19 Jan	20-16 Jan	27-02 Jan/Feb	03-09 Feb	10-16 Feb	17-23 Feb	24-01 Feb/Mar	02-08 Mar	09-15 Mar	16-22 Mar	23-29 Mar	30-05 Mar/Apr	06-12 Apr	13-19 Apr	20-26 Apr	27-03 Apr/May	
Newspapers									Number of articles											Total
Repubblica	C/L	0	3	4	15	14	15	15	13	12	15	12	15	15	15	15	15	15	15	223
Il Manifesto	C/L	0	0	0	3	9	9	10	8	15	15	15	15	15	15	15	15	29	9	197
La Nazione	C/R	0	0	0	15	15	15	15	13	15	15	15	15	15	15	15	15	15	15	223
L'Avvenire	C	0	0	0	10	8	15	14	15	15	15	14	15	15	15	13	15	15	15	209
Corriere della Sera	C	0	0	2	15	15	15	15	15	15	15	14	15	15	15	15	15	15	15	226
Italia Oggi	C	0	0	0	3	7	9	11	4	14	15	15	15	14	15	14	15	15	15	181
Libero	C/R	0	1	0	0	0	0	1	0	5	1	6	5	8	6	6	1	11	13	64
Il Sole 24 Ore	C	4	0	1	6	13	14	14	12	11	14	13	11	15	14	15	14	15	15	201
Lettera 43	C/L	0	0	0	0	0	0	0	12	15	15	15	15	15	15	15	15	29	15	176
																				1700

Data analysis

Data analysis was carried out by means of the Automated Co-occurrence Analysis for Semantic Mapping procedure (ACASM, Salvatore *et al.*, 2012; see also Buhagiar *et al.*, 2020). ACASM is based on a semiotic view of meaning (Valsiner & Rosa, 2007) seen in terms of sign transition. In the case of texts, sign transition takes the form of co-occurrences between lexemes (namely, syntagmatic associations) within the same contextual units (e.g., a paragraph of the text). The ACASM procedure was implemented by using the T-Lab software (Lancia, 2004) through the following operative procedure.

Construction of the Digital Corpus

This procedure constructs a matrix consisting of text segments in rows and lemmas in columns. Each ij-th cell contains information about the presence (1) or absence (0) of the j-th lemma within the i-th segment. The construction of the digital matrix involves, in turn, three additional operations necessary for multidimensional analysis:

Segmentation

The corpus is divided into units of analysis each of which represents an elementary context unit (ECU). An ECU consists of a group of a few contiguous utterances. The division of the text into ECUs must find a balance between two requirements: on the one hand, the segments must be long enough to be interpretable in terms of thematic content; on the other hand, the longer the segments, the greater the likelihood that each segment is not associated with a specific thematic content. Consequently, the paragraph was chosen as parameter to segment the corpus. The T-Lab's automated segmentation algorithm adopts the following criterion to segments the text in paragraph: (a) each ECU begins with the character immediately following the last character of the preceding ECU; (b) each ECU ends with the first punctuation mark (".", or "!", or "?") and with the return key; (c) the length of the ECU must not exceed 2000 characters; therefore, the

ECU ends in every case with the last word that remains within this limit, even in the absence of a punctuation mark.

Lemmatization

The lemmatization is aimed at reducing the lexical variability in the corpus, as multidimensional analysis requires a reduction in the dispersion of the data matrix. First, all lexical forms in the text are collected (a lexical form is a string of characters between two blanks; thus, in most cases a lexical form corresponds to a word, especially in the case of written texts). Second, each lexical form is categorized according to the lemma to which it belongs. A lemma is the citation form (i.e., the headword) used in the language dictionary to refer to a lexeme (i.e., a set of word forms that have the same lexical root and meaning). For example, word forms such as "play", "playing" and "played" have "play" as their lemma; "man" and "men" have "man" as their lemma. The lemmatization of the corpora was performed using the vocabulary provided by T-Lab. The output of this procedure is the list of lemmas present in the text corpus.

Selection of lemmas

The list of lemmas resulting from the previous step was subjected to selection in order to exclude lemmas not useful for the analysis. Specifically, we excluded: (a) stop-words, instrumental, empty and indicative words (e.g., "namely", "indeed", "and", "this"), namely, words without specific semantic content (the exclusion of these words was carried out through the automatic application of T-Lab's stop-words list with a following refinement check made by the research team); (b) basic auxiliary verbs (i.e., to be and to have); (c) the 5 lemmas with the highest frequency (this is because the more frequent the lemma, the less it helps to detect specific semiotic patterns – i.e., the more it acts as noise only). After applying these criteria, the 1000 most frequent lemmas were selected. This number of lemmas represents a balance between two conflicting needs: on the one hand, to keep the analysis within the computational constrain of the algorithm; on the

other hand, to get a large enough extension of the analysis, in order to enable the detection of meaningful patterns from data.

Multidimensional analysis

The digitalized matrix resulted from the previous step (see "Construction of the Digital Corpus" sub-section) was subjected to a multidimensional procedure of data analysis aimed at mapping the patterns of co-occurring lexemes that characterize the corpus. This procedure consists of the combination of Cluster Analysis (CA) and Correspondence Analysis (COR) applied to the CA's output. To be more specific:

Cluster Analysis

CA was performed on the digital matrix ECU * Lemmas aimed at grouping the ECUs of the textual corpus into clusters.CA is designed to extrapolate clusters of lexemes that tend to co-occur within the same text segments. Each cluster aggregates a set of segments (i.e., paragraphs) that tend to be similar to each other because they are made up of similar lexemes. It follows that each cluster of co-occurring lexemes (and the segments in which co-occurrence happens) can be interpreted as the marker of a specific semantic content – i.e., a theme. In other words, co-occurrence of words is taken as a similarity criterion for clustering text units: text units that contain the same co-occurring words are considered similar and are therefore clustered. The rationale is that a set of co-occurring words distinguishes a specific theme. Therefore, text units that share a certain set of co-occurring words share the thematic content marked by that set. In this way, the content analysis procedure is able to provide a fine level of semantic representation by coding each text unit of analysis in terms of a specific content, which in turn is marked by the set of co-occurring words according to which the unit was clustered.

Correspondence Analysis

Afterwards, a Correspondence Analysis (COR) procedure was applied on the obtained matrix having lemmas as rows, and clusters as columns, with each ij-th cell indicating the frequency of the i-th lemma within the j-th Cluster. COR aims to identify the semantic structures underlying the themes emerged from the CA. This procedure decomposes and reorganizes the relationships between lexemes in terms of a multidimensional structure of opposing factorial polarities, where each polarity is characterized by a set of signs that tend to co-occur and do not occur in the case of occurrence of an opposite set. In addition, COR allows further variables to be represented on the factorial dimensions extracted from the data matrix. Such variables are called illustrative, because they do not contribute to the definition of the multidimensional space but are associated with the factorial dimensions once defined. Consequently, it is possible to evaluate the relationship of the semantic structures with the characteristics of the segments and articles (in our case, the time block and the political orientation of newspapers).

Moreover, it is worth noting that, similarly to illustrative variables, the clusters resulting from the previous analysis are also representable on the factorial space. This enables a deeper interpretation of them in terms of their mutual relationship with the components of the semantic structure.

Results

The matrix subjected to analysis was composed of 11617 ECUs (in row) and 1252 lemmas (in column). The Cluster Analysis division into four clusters was chosen as the optimal solution. Table 2 presents the most representative lemmas characterising the 4 clusters, which have been interpreted as follows:

Theme 1. Pandemic trends. Lemmas concerning the evolution (e.g., days, week, years) of the pandemic (e.g., coronavirus, covid-19) and the spread of new cases (e.g., new, number, cases, contagion, resulting) in the Italian context (e.g., region, Lombardy).

Table 2. Lemmas characterizing the four clusters

		Cluster 1		
Lemmas	*F*	*TOTAL*	*Chi-square*	*p*
Casi	2818	3491	2149.60	0.000
positivo	1584	1857	1424.88	0.000
morire	1690	2046	1380.35	0.000
decesso	1034	1101	1213.47	0.000
morto	1250	1442	1177.43	0.000
paziente	1593	2012	1137.17	0.000
ricoverare	864	894	1091.39	0.000
ospedale	1570	2037	1024.43	0.000
intensivo	802	891	839.05	0.000
contagiare	1074	1334	807.90	0.000
		Cluster 2		
Lemmas	*F*	*TOTAL*	*Chi-square*	*p*
governo	771	1318	795.94	0.000
conte	376	460	793.97	0.000
ministro	588	903	780.77	0.000
Decreto	284	327	670.32	0.000
Misura	848	1636	635.13	0.000
scuola	423	676	512.57	0.000
presidente	650	1305	432.84	0.000
attività	461	839	404.63	0.000
premier	266	384	403.69	0.000
sospendere	256	369	389.76	0.000
		Cluster 3		
Lemmas	*F*	*TOTAL*	*Chi-square*	*p*
economia	416	674	1482.64	0.000
economico	374	725	1004.97	0.000
Pil	184	224	986.25	0.000
globale	258	432	874.02	0.000
mercato	262	516	685.46	0.000
produzione	202	358	626.40	0.000
miliardo	265	557	621.24	0.000
crisi	325	783	597.01	0.000
impatto	183	316	590.98	0.000
dollari	130	182	573.43	0.000
		Cluster 4		
Lemmas	*F*	*TOTAL*	*Chi-square*	*p*
vaccino	387	522	933.75	0.000
virus	1342	3286	859.66	0.000
animale	312	448	672.93	0.000
umano	242	359	491.39	0.000
ricerca	336	641	407.80	0.000
vaccini	139	176	373.68	0.000
nostro	627	1592	357.88	0.000
sperimentazione	127	161	340.71	0.000
farmaco	230	402	337.73	0.000
proteina	82	84	309.70	0.000

Note. F: frequency in the clustered segments; TOTAL: total frequency in the corpus.

Theme 2. Health protection. Lemmas concerning the health (e.g., health) protection measures (e.g., measure, to close, activity) set by the Italian institutions (e.g., government, president, minister, Italian, Italy).

Theme 3. Socio-economic consequences. Lemmas concerning the social (e.g., social, services, group) and economical (e.g., PIL, million, economic, euro) impact (e.g., crisis, rise, tax) of the pandemic (e.g., pandemic).

Theme 4. Disease: causes and treatments. Lemmas concerning disease (e.g., virus, epidemic, respiratory, disease), the explanation (e.g., information, Sars) of its causes (e.g., infection, virus, spread) and treatments (e.g., care, vaccine, response, medication) provided by experts (e.g., scientific, international, expert).

The Correspondence Analysis extracted two main factorial dimensions, that lend themselves to be interpreted as follows:

Factor 1. Health vs Socio-economic impact. One polarity of this factor groups lemmas referring to the impact of the pandemic from the health point of view (e.g., patient, hospital, department, doctor), in terms of contagions (e.g., swab, number, contagion) and disease/deaths (e.g., decease, sick, dead). The other polarity is characterised by the impact of the pandemic from a social (e.g., school, social) and economic (e.g., recession, price, debt) point of view, which has engaged the institutions (e.g., president, government, premier) in finding a way to manage (e.g., decree, investment, measure) the crisis (e.g., emergency, crisis). Taken as a whole, the factor can be interpreted as indicative of a global view of the "content" of the pandemic, represented by terms of its impact – namely, the pandemic as a health versus a socio-economic issue.

Factor 2. Health response – Institutional response. This factor is characterised by the juxtaposition between, on the one hand, lemmas concerning the scientific and medical response to the pandemic crisis – namely in terms of scientific development of resources (e.g. research, produce, researcher, vaccine, medication, develop) for the safeguarding of health (e.g., life, immune, antibody) and, on the other hand, lemmas concerning the institutional and political response (e.g., decree, ordinance, provision, minister, government, president). Thus, the factor can be interpreted as indicative of the engagement with the

pandemic crisis – the pandemic as a crisis to be addressed in terms of health versus institutional response.

Figure 1. Semantic structure of the covid-19 representation and position of illustrative variables and cluster on it

CLUSTERS & VARIABLES
X = Fact.1(53.27%); Y = Fact.2(27.04%)
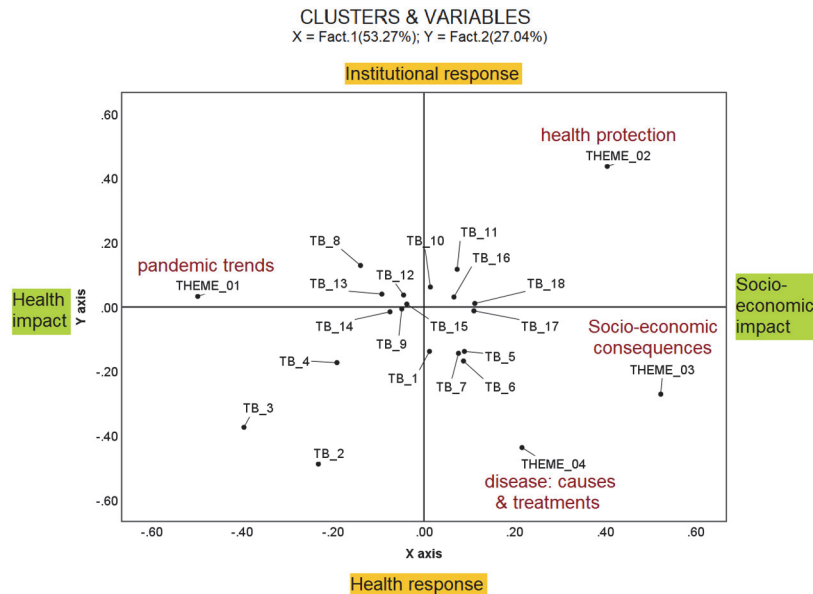
Note. TB= Time Block; PO= Political orientation (C/L=to center/left, C/R=center/right, C= center).

Figure 1 shows the position of the themes within the space defined by the factorial dimensions. Theme 1 (Pandemic trends) turns out to be the only one to approach the Health impact polarity of the first factor; in fact, theme 2 (Health protection), theme 3 (Socio-economic consequences) and theme 4 (Disease: causes and treatments) tend to be associated with the Socio-economic impact polarity. As to the second factor, theme 3 (Socio-economic consequences) and 4 (Disease: causes and treatments) tend to be associated with the Health response polarity, while theme 2 (Health protection) to the Institutional response polarity; theme 1 (Pandemic trends) is not characterized by the second factor. Figure 1 also provides the projection of the two characteristics of the texts investigated – i.e., time of publication and political

orientation of the newspapers – over the factorial space. However, with the exception of times 2 and 3 whose contents are found to be focused on the health dimensions (in terms of impact and response of/to the pandemic), no significant patterns emerge.

Discussion

Results of the analysis provided insight into Italian newspapers' representation of covid-19: on the one hand, the contents of representation (i.e., themes) were identified; on the other hand, the semantic structure underlying such contents was mapped. The adoption of this dual methodological focus was aimed at broadening the interpretive framework, integrating the recognition of the media's ability to frame the way of representing covid-19 with the analysis of how the media frames are in turn grounded on generalized meanings. The themes that emerged were found to be largely consistent with the frame literature. In fact, many of the frames identified both in the national and international literature can be seen to correspond with the themes that emerged from this study. For example, the first (Pandemic Trends) and the second (Health protection) themes that emerged from our analysis are consistent with the frames found by some scholars which showed that one of the major foci of the media discourse was the report of the number of cases and deaths and the actions governments took to prevent its spread (Rodelo, 2021; Uribe, 2020). Moreover, the frames focusing on political and social impact (Hubner, 2021; Ophir *et al.*, 2021), as well as frames focusing on economic emergency (Dahal & Khatri, 2021; Poirier *et al.*, 2020) highlighted by the literature can be associated with the third (Socio-economic consequences) theme found in the analyses, which specifically focuses on the economic and social consequences of the pandemic. The frames concerning the symptoms and effects of covid-19 (Ophir *et al.*, 2021) resonate widely with the fourth theme (Disease: causes and treatment), which concerns the disease specifically, and also the explanation of its causes and treatments provided by experts.

Specific to the Italian context, these findings are consistent with other studies (Busso & Tordini, 2022; Crabu *et al.*, 2021; Miconi & Risi, 2022) which state that media narratives related to covid-19 move within the following main frames: a political-institutional frame (cf.

Theme 2. Health protection and Theme 3. Socio-economic consequences) in which the pandemic is discussed mainly in terms of counter measures and economic and social relations; a scientific frame (cf. Theme 4. Disease: causes and treatments) related to the origins, clinical development and epidemiological profile of the pandemic; and a medical frame (cf. Theme 1. Pandemic trends) related to the general evolution of the contagion.

These data show that the pandemic has been framed primarily in terms of a health versus institutional problem. This dialectic also recurs within the semantic structure identified within this study, where the first factor refers to the effects of the pandemic in terms of its health, social and economic impact; again, the second factor refers to the management of the pandemic at the medical-health and political-institutional levels.

Our study investigated whether (a) political orientation played a role in influencing discourses about the pandemic and (b) whether the semantic structure of these discourses evolved over time. In contrast to other studies which claim that political orientation influenced the representation of covid-19 (Crabu *et al.*, 2021; Rodelo, 2021; Zhang, 2021), our analysis showed the political orientation of newspapers were not associated with the polarities of the semantic structure. This suggests that the political orientation of newspapers does not seem to have influenced the way news about the pandemic were reported. This may be due to the fact that our sample consists of national newspapers, thus inclined to reach a wider and more diverse readership, therefore, probably less politically polarized.

The same absence of relationship was also found between semantic structure and the time. In fact, also in this case in contrast with other scholars, who found that the discourse about the pandemic varied over different time periods – moving, for example, from a health-related frame in the early months of the pandemic to a political-institutional frame in the later months (Fatima, 2020) and vice versa (Pan & Meng, 2016) –, our results show that the themes had roughly the same importance over the 18 weeks covered by the study (January-May 2020). Thus, the representation of covid-19 in Italian newspapers – except for the first two weeks after the outbreak of the pandemic in which newspapers focused on health aspects in terms of impact and response of/to the pandemic – appears to be balanced; in fact, there is no polarization

on the semantic structure (cf. Figure 1). This aspect probably reflects two characteristics: on the one hand, the ability of Italian institutions to cope with the emergency – this is confirmed by the praise received by Italy about the management of the crisis by the WHO (https://lavocedinewyork.com/en/news/2020/09/25/who-praises-it-aly-for-its-exemplary-response-to-the-covid-19-crisis/), the New York Times (https://www.nytimes.com/2020/03/21/world/europe/it-aly-coronavirus-center-lessons.html) and the Financial Times (https://www.ft.com/content/6831be3e-2711-4ea3-8f62-daa82cf9ca11); on the other hand, a circular relationship of reiteration of meanings between a society culturally predisposed to integrate these aspects and the media that contributed to emphasize the medical-health and political-institutional aspects of the pandemic crisis.

The study certainly has the limitation of focusing exclusively on the analysis of Italian newspapers – and a restricted pool of sources. Therefore, generalizability of results should be done with extreme caution. However, our analysis did actually aim at describing the Italian context. For future research it would be useful, on the one hand, to take into consideration also more politically polarized newspapers; on the other hand, to broaden the time frame under analysis so as to monitor more accurately its evolution and to extend the analysis to different countries in order to make comparisons among them. The intercultural comparison would allow a clearer view of the processes underlying public discourse of socially important issues.

References

Anshelm, J., & Hultman, M. (2014). *Discourses of global climate change: apocalyptic framing and political antagonisms*. London: Routledge.
Buhagiar, L. J., Sammut, G., Avdi, E., Koutri, I., Mylona, A., Pop, A., Rochira, A., Redd, R. R., and Santarpia, A. (2020). Islam. In: Mannarini, T., Veltri, G. & Salvatore, S. (eds.). *Media and Social Representations of Otherness. Culture in Policy Making: The Symbolic Universes of Social Action*. Springer, Cham.
Busso, L., & Tordini, O. (2022). How do media talk about the Covid-19 pandemic? Metaphorical thematic clustering in Italian online newspapers. *arXiv preprint, arXiv: 2204.02106*.

Chaiuk, T. A., & Dunaievska, O.V. (2020). Producing the Fear Culture in Media: An Examination on Coronavirus Discourse. *Journal of History Culture and Art Research*, 9(2), 184-194. Doi: 10.7596/taksad.v9i2.2636

Chen, Y., Liu, Q., & Guo, D. (2020). Emerging coronaviruses: Genome structure, replication, and pathogenesis. *Journal of Medical Virology,* 92, 418-423.

Chong, M., & Choy, M. (2018). The social amplification of haze-related risks on the internet. *Health Communication*, 33(1), 14-21.

Chong, D., & Druckman, J. (2007). Framing Theory. *Annual Review of Political Science.* Doi: 10.10.1146/annurev.polisci.10.072805.103054.

Crabu, S., Giardullo, P., Sciandra, A., Neresini, F. (2021). Politics overwhelms science in the Covid- 19 pandemic: Evidence from the whole coverage of the Italian quality newspapers. *PLoS One*, 16(5): e0252034. Doi: 10.1371/journal. pone.0252034

Dahal, S., & Khatri, B. B. (2021). Media Framing of COVID-19: A Content Analysis of Nepali Newspapers. *Nepalese Journal of Development and Rural Studies,* 18(01), 35-47. Doi: 10.3126/njdrs.v18i01.41947

Dezhkameh, A., Layegh, N., & Hadidi, Y. (2021). A Critical Discourse Analysis of Covid-19 in American and Iranian Newspapers. *Gema Online Journal of Language Studies*, 21(3), 231-244. Doi: 10.17576/gema-2021-2103-13.

Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication,* 43(4), 51-58. Doi: 10.1111/j.1460–2466.1993.tb01304.x

Fatima, S. S. (2020). *Understanding the construction of journalistic frames during crisis communication: Editorial coverage of COVID-19 in New York Times.* http://www.diva-portal.org/smash/get/diva2:1447292/FULLTEXT01.pdf

Fine, T.S. (1992). The impact of issue framing on public opinion: Toward affirmative action programs. *The Social Science Journal,* 29(3), 323-334. Doi: 10.1016/0362-3319(92)90025-D

Gui, L. (2021). Media framing of fighting COVID-19 in China. *Sociol Health Illn,* 43, 966-970. Doi: 10.1111/1467-9566.13271

Hubner, A. (2021). How did we get here? A framing and source analysis of early COVID-19 media coverage. *Communication Research Reports,* 38(2), 112-120. Doi: 10.1080/08824096.2021.1894112

Knight, G., & Greenberg, J. (2011). Talk of the Enemy: Adversarial Framing and Climate Change Discourse. *Social Movement Studies,* 10(4), 323-340, Doi: 10.1080/14742837.2011.614102

Lancia F. (2004). Tools for Text Analysis. Introduction to the use of T-LAB [*Strumenti per l'Analisi dei Testi. Introduzione all'uso di T-LAB*]. Milano: Franco Angeli.

Lawlor, A., & Tolley, E. (2017). Deciding Who's Legitimate: News Media Framing of Immigrants and Refugees. *International Journal of Communication,* 11, 25. Retrieved from https://ijoc.org/index.php/ijoc/article/view/6273

Lecheler, S., & de Vreese, C. H. (2012). News Framing and Public Opinion: A Mediation Analysis of Framing Effects on Political Attitudes. *Journalism & Mass Communication Quarterly,* 89(2), 185-204. Doi: 10.1177/1077699011430064

Martin, C. J. (2016). The sharing economy: A pathway to sustainability or a nightmarish form of neoliberal capitalism?. *Ecological Economics,* 121, 149-159. Doi: 10.1016/j.ecolecon.2015.11.027

Mazzara, B. M., Avdi, E., Kadianaki, I., Koutri, I., Lancia, F., Mannarini, T., Mylona, A., Pop, A., Rochira, A., Redd, R. E., Sammut, G., Suerdem, A., Veltri, G. A., Verbena, S., Salvatore, S. (2021). The Representation of Immigration. A Retrospective Newspaper Analysis, *Journal of Immigrant & Refugee Studies,* 19(4), 436-455. Doi: 10.1080/15562948.2020.1836299

Miconi, A., Risi, E. (2022). Framing pandemic news. A research on the representation of Covid-19 in the Italian news media [Framing pandemic news. Una ricerca sulla rappresentazione del Covid-19 nei news media italiani], *Problemi dell'Informazione, Rivista Quadrimestrale,* 1, 31-61. Doi: 10.1445/103467

Mohd Nor, N. F., & Zulcafli, A. S. (2020). Corpus Driven Analysis of News Reports about Covid-19 in a Malaysian Online Newspaper. *GEMA Online Journal of Language Studies,* 20, 199-220.

Ogbodo, J. N., Onwe, E. C., Chukwu, J., Nwasum, C. J., Nwakpu, E. S., Nwankwo, S. U., Nwamini, S., Elem, S., & Iroabuchi Ogbaeja, N. (2020). Communicating health crisis: a content analysis of global media framing of COVID-19. *Health Promotion Perspectives,* 10(3), 257-269. Doi: 10.34172/hpp.2020.40

Ophir, Y., Walter, D., Arnon, D., Lokmanoglu, A., Tizzoni, M., Carota, J., D'Antiga L., & Nicastro, E. (2021). The Framing of COVID-19 in Italian Media and Its Relationship with Community Mobility: A Mixed-Method Approach. *Journal of Health Communication,* 26(3), 161-173. Doi: 10.1080/10810730.2021.1899344

Osisanwo, A. (2022). "This Virus is a Common Threat to All Humans": Discourse Representation of COVID-19 in Selected Newspaper Editorials. *Athens Journal of Mass Media and Communications,* 8(1), 59-78. Doi: 10.30958/ajmmc.8-1-4

Pan, P. L. and Meng, J. (2016). Media Frames across Stages of Health Crisis: A Crisis Management Approach to News Coverage of Flu Pandemic.

Journal of Contingencies and Crisis Management, 24(2), 95-106. Doi: 10.1111/1468-5973.12105.

Poirier, W., Ouellet, C., Rancourt, M. A., Béchard, J., & Dufresne, Y. (2020). (Un)covering the COVID-19 pandemic: framing analysis of the crisis in Canada. *Canadian Journal of Political Science/Revue Canadienne de Science Politique,* 53(2), 365-371.

Rochira, A., Salvatore, S., Veltri, G.A., Reed, R. R., & Lancia, F. (2020). Theory and method for the analysis of social representations. In T. Mannarini, G. A. Veltri, & S. Salvatore (eds.). *Media and social representations of otherness. Psycho-social-cultural implications* (pp. 17-38). Cham: Switzerland.

Rodelo, F. V. (2021). Framing of the Covid-19 pandemic and its organizational predictors. *Cuadernos,* (50), 91-112. Doi: 10.7764/cdi.50.37525

Salvatore, S. (2016). *Psychology in black and white. The project of a theory-driven science.* Charlotte NC: InfoAge publishing.

Salvatore, S., Fini, V., Mannarini, T., Veltri, G. A., Avdi, E., Battaglia, F., ... & Re. Cri. Re. Consortium. (2018). Symbolic universes between present and future of Europe. First results of the map of European societies' cultural milieu. *PloS one,* 13(1), e0189885.

Salvatore, S., Gennaro, A., Auletta, A. F., Tonti, M., & Nitti, M. (2012). Automated method of content analysis: A device for psychotherapy process research. *Psychotherapy Research,* 22(3), 256-273. Doi: 10.1080/10503307.2011.647930

Salvatore, S., & Venuleo, C. (2013). Field dependency and contingency in the modelling of sensemaking. *Papers on Social Representation* [on Line Journal], 22(2), 21.1–21.41.

Sowden, R., Borgstrom, E., Selman, L. E. (2021). 'It's like being in a war with an invisible enemy': A document analysis of bereavement due to COVID-19 in UK newspapers. *PLoS One,* 16(3): e0247904. Doi: 10.1371/journal. Pone.0247904

Stecula, D. A. and Merkley, E. (2019). Framing Climate Change: Economics, Ideology, and Uncertainty in American News Media Content From 1988 to 2014. *Front. Commun.* 4:6. Doi: 10.3389/fcomm.2019.00006

Tsoy, D., Tirasawasdichai, T., & Kurpayanidi, K. I. (2021). Role of social media in shaping public risk perception during Covid-19 pandemic: a theoretical review. *International Journal of Management Science and Business Administration,* 7(2), 35-41.

Uribe, M. R. (2020). Framing of online news coverage of the coronavirus in the United States. *Elon Journal of Undergraduate Research in Communications,* 11(2), 89-98.

Valsiner, J. (2007). *Culture in minds and societies. Foundations of cultural psychology.* India: Sage Publications.

Valsiner, J., & Rosa, A. (2007). *The Cambridge handbook of sociocultural psychology.* Cambridge: Cambridge University Press.

van Dijk, T. A. (2005). Critical Discourse Analysis. In D. Schiffrin, D. Tannen & H. E. Hamilton (eds.). *The Handbook of Discourse Analysis* (pp. 349-371). Oxford, New York: Blackwell Publishers.

van Dijk, T. A. (2009). News, Discourse, and Ideology. In K. Wahl-Jorgensen & T. Hanitzsch (eds.). *The Handbook of Journalism Studies.* Abingdon: Routledge.

Weaver, R., & Jackson, D. (2012). Tragic heroes, moral guides and activists: representations of maternal grief, child death and tragedy in Australian newspapers. *Health Sociology Review,* 21(4), 432-440.

World Health Organization (2020). *Novel Coronavirus.* Situation Report – 205, 205(6), 1-19.

Zhang, R. (2021). How media politicize COVID-19 lockdowns: a case study comparing frame use in the coverage of Wuhan and Italy lockdowns by The New York Times. *Media Asia*, 48(2), 89-107.