

Social representations of coronavirus/COVID-19 in Italy: Psychosocial anchoring to conspiracy beliefs, vaccine hesitancy, and the psychological dimension

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Giannino Melotti¹ , Mariana Bonomo², Eemeli Hakoköngäs³ 
and Monica Pivetti⁴ 

Abstract

From the societal approach of the Theory of Social Representations, this study aimed to investigate the social representations of coronavirus/COVID-19 among the Italian population. By means of an online questionnaire, 599 individuals participated in the research, with a mean age of 38.09 years ($SD = 14.44$), 62.1% being women. The instrument was composed of sociodemographic questions, free association technique for the inductive term “coronavirus/COVID-19” and scales on conspiracy beliefs, vaccine hesitancy, and psychological dimension. The results allowed us to identify four social representations: “Citizens driven by Social Representations anchored to factual Covid-19 pandemic data,” with lower vaccine hesitancy and conspiracy beliefs, and greater faith in science; “Citizens with low confidence in anti-pandemic preventive measures by government,” with lower agreement with restriction measures; “Emotional people,” with higher agreement with restriction measures and expression of psychological distress; and “Minority group of Citizens driven by denial of Covid-19,” with higher vaccine hesitancy and conspiracy beliefs. We discuss the different social representations identified from the psychological and psychosocial anchoring processes in the context of the COVID-19 pandemic.

Keywords

emotional dimension, conspiracy beliefs, coronavirus, COVID-19, social representations, vaccine hesitancy

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Introduction

Like other countries in the world, Italy was among the worst affected by the COVID-19 pandemic in 2020, both in terms of the number of people infected and deaths, becoming the epicenter of the pandemic in March of that year (World Health Organization—WHO, 2021). According to a report by the Ministry of Health (2020), the COVID-19 pandemic in Italy during 2020 can be divided into: (1) acute phase, which went from 20 January to 20 March, with a significant increase in infections, high mortality and overloaded health institutions and systems; (2) post-acute phase, between 21 March and 4 May, in which national lockdown was enforced and control measures were maintained throughout the territory; and (3) transitional phase, from 4 May, during which public spaces were progressively reopened according to different transit modalities between the regions of the country. The present study was carried out between April and May 2020, during a period of national lockdown.

Research conducted on the psychosocial effects of the COVID-19 pandemic among the Italian population demonstrated impacts on people’s mental health, social interaction, quality of life, and psychological well-being (Barni et al., 2020; Caci et al., 2020; Calbi et al., 2021; Gioia et al., 2021; Lardone et al., 2020), as well as different social practices, which ranged from adopting and agreeing

¹Department of Education Studies “Giovanni Maria Bertin”—EDU, University of Bologna, Bologna, Italy

²Department of Social and Developmental Psychology, Federal University of Espírito Santo, Vitória, Brazil

³Department of Social Sciences, Social Psychology, University of Eastern Finland, Kuopio, Finland

⁴Department of Human and Social Sciences, University of Bergamo, Bergamo, Italy

Corresponding author:

Giannino Melotti, Department of Education Studies “Giovanni Maria Bertin”—EDU, University of Bologna, 40126 Bologna, Italy.

Email: giannino.melotti@unibo.it



with the protective measures laid down by the health and government authorities to negationist beliefs and behaviors (Caserottia et al., 2021; Mancosu et al., 2017; Palamenghi et al., 2020). In view of the importance of investigating the different positions taken before the pandemic context, this study aimed to analyze the social representations of coronavirus/COVID-19 among Italians.

Social representations and the COVID-19 pandemic

Known as the societal approach of the Theory of Social Representations, the paradigm of the three phases emerges as a theoretical and methodological proposition of the so-called Geneva School, conceived by William Doise (Almeida, 2009). This perspective emphasizes the social insertion of individuals as a source of variation in the representational field, aiming to analyze the different positions of the subject of representation according to the social object under analysis. It is upheld, therefore, in the articulation between the individual and collective dimensions in the production of common sense theories, that is, social representations, which are constituted as worldviews and guide everyday social practices among individuals, groups, and societies (Abric, 2003; Doise, 1992, 2002; Jodelet, 2015, 2005; Moscovici, 2003). This dynamic is guided by psychosocial processes, such as values, attitudes, and beliefs prevailing in the sociocultural system of reference (Doise, 2002, 2011; Melotti et al., 2019; Páez & Pérez, 2020).

The theoretical-methodological framework of the three-phase paradigm (Doise, 2002; Doise et al., 1992) is based on the propositions that: (1) different members of a social context share common beliefs and meanings about social objects, constituting shared fields of signification; (2) facing the same object of social representation, different positions may be verified as a function of the organizing principles that modulate the interindividual variability of the representational field; and (3) consensus and oppositions may be generated by anchoring position-taking in collective realities common to certain groups.

The formulation work of social representations, culturally and historically situated (Jodelet, 2015; Marková, 2006), has as its main function to make familiar and known what is strange and fearful to a given social set (Aikins, 2012; Moscovici, 2003; Rimé, 2008). Faced, therefore, with new and threatening phenomena, the sociogenetic activity of anchoring will contribute to the appropriation of the new social object (Jodelet, 2005), attributing meanings to it from the preexisting system of thought and instrumentalizing this field of signification for daily social practices. This seems to be the condition in which different societies find themselves facing the new coronavirus in the context of the COVID-19 pandemic (Apostolidis et al., 2020; Páez & Pérez, 2020; Pizarro et al., 2020; Rateau et al., 2021; WHO, 2021).

Research conducted into the social representations of coronavirus/COVID-19 in different nationalities has highlighted psychosocial phenomena activated and/or strengthened by the stressful context of the pandemic, such as conspiratorial beliefs, questions about the credibility of science and governments, and especially collective fear (Apostolidis et al., 2020; Fasanelli et al., 2020; Páez & Pérez, 2020; Pizarro et al., 2020; Rateau et al., 2021). In the broad review conducted by Páez and Pérez (2020), the authors identified that these studies have debated the beliefs around COVID-19, the emergence and spread of these representations, as well as the polarization and formation of polemical representations from different position-taking towards the new phenomenon.

These dimensions are reflected in the representational field itself, as can be observed in the results of some studies, which mainly had “fear” and “death” as widely shared core meanings (Fasanelli et al., 2020; Rateau et al., 2021; Salas-Durán et al., 2021). In addition to these two core elements, the following were identified: among French individuals, “contagion,” “lockdown” and “disease,” and, specifically for those who believe that the origin of the coronavirus has a human and intentional cause, also “conspiracy” (Rateau et al., 2020); for Italian university students, “lockdown,” “quarantine,” “anxiety,” “pandemic,” “PPE,” and “virus” (Fasanelli et al., 2020); and, among Chileans, “pandemic,” “disease,” “anguish,” “virus,” and “contagion” (Salas-Durán et al., 2021). In the Spanish context, elderly people associate the pandemic with death and negative emotions (such as fear, loneliness, and insecurity) and conceive the messages disseminated by the government and the media as insufficient and contradictory, adopting in their practices the bio-security measures guided by doctors and scientists (Eiguren et al., 2021); which was also found among Spanish children, who expressed fear of contagion and death, and see the coronavirus as an enemy that is being fought against by the medical sciences (Idoiaga et al., 2020).

As factors of social propagation of fear (Rimé, 2008), misinformation and manipulation of news in the media and social networks were present in the social representations of COVID-19, increasing the public health crisis by the negative effects of so-called fake news (Garcés-Prettel et al., 2021; Páez & Pérez, 2020; Rateau et al., 2021). For Pizarro et al. (2020) and Oleksy et al. (2021), this communication system backfeeds conspiratorial beliefs and may contribute to negationist and risk-taking practices (Apostolidis et al., 2020; Breakwell, 2020), including anti-vaccine behaviors and rejection of social isolation measures (Pivetti et al., 2021).

Conspiracy beliefs, vaccine hesitancy, and the emotional dimension

Conceptualized as an attempt to explain the occurrence of certain events from theories based on secret plots and

allegedly elaborated by groups with relative power (Magarini et al., 2021; Oleksy et al., 2021), conspiracy beliefs manifest themselves especially in times of crisis, as in the COVID-19 pandemic. They may be widely shared by certain social groups and have the function of reducing the complexity of confusing and threatening phenomena by identifying their root cause (Apostolidis et al., 2020; Páez & Pérez, 2020; Pizarro et al., 2020).

Previous studies have shown that during the COVID-19 pandemic, these beliefs spread rapidly through social networks and online media (Ferrara et al., 2020; Magarini et al., 2021), usually linked to topics such as virus emergence, government strategies and actions, scientific negationism, and vaccination refusal (Conway et al., 2020; Freeman et al., 2020; Oleksy et al., 2021; Pivetti et al., 2021; Sutton & Douglas, 2020). Factors associated with coronavirus-related conspiracy beliefs include right-wing political positioning, higher religiosity, and conservative values (Allington et al., 2020; Freeman et al., 2020; Islam et al., 2020; Jolley & Paterson, 2020; Pizarro et al., 2020).

In the post-truth era, the mass dissemination of fake news has further exacerbated the negative effects of conspiratorial information (Apostolidis et al., 2020; Ferrara et al., 2020), increasing risk-taking behavior and anti-vaccine movements and practices (Dror et al., 2020; Goldberg & Richey, 2020). Indeed, studies on coronavirus vaccination intention have identified a positive association between conspiratorial beliefs, vaccine rejection attitudes, and misinformation about safe and scientifically proven sources, including justifications such as the following: coronavirus is allegedly a biological weapon created in a laboratory and the vaccine a form of microchip implant to control people (Sallam et al., 2021; Simione et al., 2021).

As a psychosocial process, the emotional dimension has acted as the basis of these phenomena, both in the collective and individual universes (Marzana et al., 2021; Apostolidis et al., 2020; Rateau et al., 2021). Especially in threatening contexts, such as the current pandemic, the function of emotions is to guide risk perception (Pizarro et al., 2020), to mediate protection of individuals and groups (Breakwell, 2020), and to exert relative control over everyday events and experiences (Marzana et al., 2021). They also act in regulating the familiarization/non-familiarization of social objects, generating consensus within groups on acceptable and nonacceptable practices and behaviors for their reference system (Páez & Pérez, 2020a; Rimé, 2008). The effects of this dynamic, in the current global crisis, can be observed in configurations such as trust/distrust in science or conspiracy theories, security/fear in relation to the guidelines received from health institutions and government agencies, or attitudes of adherence/rejection to health and biosecurity measures (Conway et al., 2020; Freeman et al., 2020; Oleksy et al., 2021; Pivetti et al., 2021; Rateau et al., 2021; Sutton & Douglas, 2020).

Aims and scope

The aim of this work is to analyze the social representations of coronavirus/COVID-19 in the light of the methodological indications of Doise (1992, 2002) and Doise et al. (1992), highlighting the shared content and the psychological and psychosocial anchoring.

First, we will identify some clusters of subjects which correspond to different social representations (psychological anchoring). Among these clusters, as coronavirus/COVID-19 is a frightening disease, we hypothesize to identify at least one cluster whose representation will be markedly constituted by emotional elements. In addition, being aware that there are minorities who question the danger or the actual existence of the virus, we will also try to identify at least one cluster of subjects whose representation tends to minimize, or even deny, the danger of the coronavirus/COVID-19.

Finally, by analyzing the psychosocial anchoring process, we hypothesize that subjects with social representations of the COVID-19/coronavirus anchored primarily in emotional elements perceive the pandemic as more threatening and support measures of social restriction and isolation. In turn, we further hypothesize that those who manifest elements of a negationist nature regarding the COVID-19 pandemic possess attitudes of rejection of the COVID-19 vaccine, conspiratorial beliefs, and less faith in science.

Methods

Participants. During the first lockdown that took place in Italy (late April to mid-May 2020), through the use of social media, a convenience sampling strategy was carried out (Etikan et al., 2016). Participants were asked to complete an online questionnaire developed on the Qualtrics.com platform. The completion time took approximately 20 min. Informed consent was obtained from all participants before starting to complete the form.

Five hundred ninety-nine subjects (372 females, 225 males, and 2 answering “other”), with an average age of 38.09 years ($SD = 14.44$) participated in the study. The region of residence of the subjects is mostly represented by Emilia and Romagna (50.3%), followed by Veneto (10.5%), Marche (6.5%), Puglia (5.3%), Lombardia (5.2%), Friuli Venezia Giulia (4.3%), Abruzzo (3.8%), Campania (2.8%), and Lazio (2.8%). The remaining regions were indicated by less than 2% of the subjects.

Regarding educational qualifications, 32.1% ($n = 192$) of the subjects stated that they held a high school diploma, 29.7% ($n = 178$) a 2nd-level degree or a degree prior to 1999, 10.9% ($n = 65$) a Bachelor’s degree, 9% ($n = 54$) a Master’s degree or a postgraduate degree, 9% ($n = 54$) a PhD, 3.7% ($n = 22$) a lower secondary school diploma, 3.3% ($n = 20$) a University diploma (three-year

degree), 2.2% ($n = 13$) a three-year vocational diploma, and only one subject (0.2%) a primary school certificate.

In terms of employment, 47.4% ($n = 284$) of the respondents were in full-time employment, 17.4% ($n = 104$) students, 9.7% ($n = 58$) in part-time employment, 6.5% ($n = 39$) retired, 6.2% ($n = 37$) unemployed, 3.2% ($n = 19$) student workers, and 2.7% ($n = 16$) self-employed. The others were housewives (1.5%, $n = 9$), first-time jobseekers (1.5%, $n = 9$), PhD students/research assistants (1.0%, $n = 6$), unemployed/disabled (0.7%, $n = 4$), people on temporary lay-off (0.5%, $n = 3$), on maternity leave (0.3%, $n = 2$), and other (1.5%, $n = 9$).

The majority considered themselves to be religious (61.4%, $N = 368$) while the rest did not (38.6%, $N = 231$). The political orientation is mainly distributed between the left and the center-left (Table 1).

Instruments. The questionnaire consisted of three parts: (1) a sociodemographic form (gender, age, education, occupation, region of residence, religiosity, and political orientation); (2) a free association task (Abric, 2003) to the inductive stimulus “What do you think, feel or imagine when I say ‘Coronavirus/COVID-19’”? Write five words or phrases that come to mind”; and (3) a battery consisting of several scales measuring psychosocial variables, as follows:

- (a) Short Version of Vaccine Acceptance Instrument (Sarathchandra et al., 2018) consisting of ten items assessing vaccine hesitancy (e.g.: “Some vaccines are unnecessary since they target relatively harmless diseases”) (7-point Likert scale, 1 = “Strongly disagree” to 7 = “Strongly agree”; $\alpha = .92$);
- (b) Attitudes towards the COVID-vaccine, a scale consisting of four items, created ad hoc for this study on the basis of the relevant scientific literature (Lewandowsky et al., 2015; Sarathchandra et al., 2018) (e.g.: “If a vaccine against Coronavirus were available, I would get vaccinated immediately”) (7-point Likert scale, 1 = “Strongly disagree” to 7 = “Strongly agree”; $\alpha = .93$);
- (c) Faith in science, a scale consisting of 8 items obtained from Farias et al. (2013) and Rutjens et al. (2018) (e.g.:

“Science is the most efficient means of attaining truth”) (6-point Likert scale, 1 = “Strongly disagree” to 6 = “Strongly agree”; $\alpha = .80$);

- (d) Conspiracy beliefs, consisting of 5 items taken from the questionnaires used by Mancosu et al. (2017) and Lewandowsky et al. (2015) (e.g.: “The Moon landings never happened and the evidence was fabricated by NASA and the US government”) (the response scale ranged from 0 = “not plausible at all” to 10 = “completely plausible”; $\alpha = .79$);
- (e) COVID-related conspiracy beliefs, consisting of 5 items (e.g.: “The coronavirus was spread deliberately to damage the economy of certain countries” created ad hoc for this study on the basis of the relevant scientific literature (Allington et al., 2020; Islam et al., 2020; Jolley & Paterson, 2020) (the response scale ranged from 0 = “not plausible at all” to 10 = “completely plausible”; $\alpha = .87$);
- (f) Governmental Response to Coronavirus Questionnaire (Conway et al., 2020); for this study, three subscales of the original questionnaire were used to measure the level of approval of the respondents towards the responses given by the Government to the crisis triggered by the COVID-19 pandemic, in detail the Restriction Sale composed of 3 items (e.g.: “We need strong State government officials right now to take action to stop the spread of the disease”) ($\alpha = .54$); the Informational Contamination Scale, 2 items (e.g.: “I distrust the information I receive from the government about the Coronavirus (COVID-19)”) ($\alpha = .76$), and the Reactance Scale, 2 items (e.g. “I am upset at the thought that the government would force people to stay home against their will”) ($\alpha = .83$). Measurements were made using a 7-point Likert scale, 1 = “Strongly disagree” to 7 = “Strongly agree”;
- (g) The Coronavirus Experiences and Impacts Questionnaire (Short Version) (Conway et al., 2020); we used 2 subscales from the original questionnaire to measure participants’ experiences with and impacts of COVID-19, in particular the News scale (2 items, e.g.: “I watch a lot of news about the Coronavirus (COVID-19)”) ($\alpha = .81$), and the Psychological dimension scale (2 items, e.g. “I have become depressed because of the Coronavirus (COVID-19)”) ($\alpha = .71$) (7-point Likert scale, 1 = “Strongly disagree” to 7 = “Strongly agree”);
- (h) The Perceived Coronavirus Threat Questionnaire (Short Version) (Conway et al., 2020), 3 items (e.g.: “Thinking about the coronavirus (COVID-19) makes me feel threatened”) to measure how threatened or concerned participants felt about COVID-19 (7-point Likert scale, 1 = “Strongly disagree” to 7 = “Strongly agree”; $\alpha = .89$).

Procedure. Following the theoretical-methodological orientation of the three-stage paradigm (Doise et al., 1992), we proceeded to analyze the semantic field of the object of

Table 1. Political orientation.

	<i>n</i>	%
Far left	20	3.3
Left	232	38.7
Center-left	176	29.4
Center	72	12.0
Center-right	55	9.2
Right	43	7.2
Far right	1	.2
Total	599	100.0

social representation as follows: (1) shared content, presenting the representational plan obtained from the analysis of lexical correspondence (ACL); (2) psychological anchoring, the different individual positions vis-à-vis the object of representation, highlighted through the identification of homogeneous clusters for the type of association produced obtained from the ACL; and (3) psychosocial anchoring, how different individual positions (clusters) differ with respect to psychosocial variables such as vaccine hesitancy, attitudes towards the COVID-19 vaccine, trust in science, conspiratorial beliefs in general, conspiratorial beliefs towards COVID-19, and the government's coronavirus response.

The present study complies with the Code of Ethics of the Associazione Italiana di Psicologia (AIP) and was passed by the Bioethics Committee, University of Bologna, in April 2020.

Results

The shared content of social representations of coronavirus/COVID-19. The first step was to normalize the text produced through the associations with the stimulus "coronavirus/COVID-19," standardizing singular/plural and masculine/feminine, and to categorize it semantically in order to obtain a limited number of categories: for example, words such as "lies," "deceit," "deception" were grouped under the category "falsehood." This procedure was carried out by two independent judges and controversial or ambiguous cases were referred to a third judge.

Altogether, 3289 associations were produced, with an average of 5.5 associations per participant. The number of distinct categories was 658, corresponding to 20% of the total number of responses. Data were analyzed using the French SPAD-T software for textual data analysis (Lebart et al., 1995; Lebart & Salem, 1994). Table 2 shows the frequencies of the 121 categories with a frequency ≥ 6 .

In order to highlight individual differences with regard to the object of representation, we conducted a Lexical Correspondences Analysis (ACL) (Lebart & Salem, 1988) using SPAD-T's ASPAR procedure. This analysis allows us to identify the principles on which the participants' individual positions are organized (the opposite poles of the axes). The analysis was carried out from the 121 categories with frequency ≥ 6 . Two factorial axes were extracted which explain 3.79%¹ of the total inertia. Figure 1 shows the factorial plane originating from the intersection of the first and second axes where the categories contributing to the formation of the factors were projected. To determine the level of acceptance of the significant terms, we followed the rule absolute contribution (a.c.) $\geq 100/n$ of categories (100/121), which returned us the threshold value a.c. ≥ 0.8 .

The first factor we have called "Critical positions towards the pandemic" vs. "Consequences of the pandemic." On the left-hand side of the factorial plan we find categories

that express critical positions towards the emergency situation:

1. that of those who seem to deny the seriousness of the pandemic situation and who use categories such as "Conspiracy" (a.c.: 25.8), "No_freedom" (a.c.: 11.3), "Control" (a.c.: 5.0), "Falsehood" (a.c.: 5.0), "No_rights" (a.c.: 3.5), "Panic" (a.c.: 2.4), "Freedom" (a.c.: 1.6), and "Fake news" (a.c.: 1.5);
2. that of those who, with a less extremist position, maintain that the "Media" (a.c.: 1.1) exploit the "Ignorance" (a.c.: 2.1) of people and exaggerate ("Exaggeration," a.c.: 1.5) in presenting the real situation caused by the coronavirus;
3. that of those who identify "Globalization" (a.c.: 0.8) as one of the main reasons ("Responsibility," a.c.: 0.9) for the spread of the virus;
4. that of those who hope ("Hope," a.c.: 1.8) that the situation we are experiencing may prove to be an opportunity for people to change the attitude they have towards "Nature" (a.c.: 1.0) and may therefore be an opportunity for "Rebirth" (a.c.: 0.8).

On the right-hand side of the first factor, we find instead categories that portray the coronavirus/COVID-19 as a "Disease" (a.c.: 1.2) so contagious ("Contagion," a.c.: 2.0) that it has caused a "Pandemic" (a.c.: 0.9) requiring "Intensive care" (a.c.: 1.1) in "Hospital" (a.c.: 1.6) where the sick are kept at "Distance" (a.c.: 1.3) in "Quarantine" (a.c.: 2.2).

The second factor we have defined as "The emotional dimension associated with the pandemic" vs. "The objective aspects of coronavirus/COVID-19." At the top of the factorial plan, in fact, the descriptions are limited almost entirely to the emotions triggered by the pandemic: "Helplessness" (a.c.: 12.0), "Anger" (a.c.: 9.8), "Sadness" (a.c.: 7.6), "Fear" (a.c.: 5.7), "Anxiety" (a.c.: 5.2), "Uncertainty" (a.c.: 3.7), "Loneliness" (a.c.: 3.0), "Worry" (a.c.: 2.5), "Pain" (a.c.: 2.1), "Environment" (a.c.: 1.7), "Dread" (a.c.: 1.0), and "Future" (a.c.: 0.8). At the bottom of the factorial plan, on the other hand, coronavirus/COVID-19 is described in very objective terms as an "Influenza" (a.c.: 1.4) from "China" (a.c.: 0.8) caused by a "Virus" (a.c.: 1.0) requiring the use of "Face mask" (a.c.: 2.0) and "Disinfectant" (a.c.: 0.8).

The psychological anchoring. Through the classification analysis implemented in Spadt, we extracted four different clusters of subjects, homogeneous within themselves for the answers given to the free association "coronavirus/COVID-19," which are representative of the individual positions towards the object of representation (Table 3 and 4).

Cluster 1, the most numerous, describes the coronavirus/COVID-19 in a very objective manner. We have labelled

Table 2. List of 121 categories with frequency ≥ 6 .

Categories	n	Categories	n	Categories	n	Categories	n
Pandemic	176	China	18	Relatives	12	Dread	8
Quarantine	110	Future	18	Swabs	12	Help	7
Fear	104	No_freedom	18	Closure	11	Need	7
Virus	98	Solidarity	18	Helplessness	11	Changes in everyday life	7
Death	88	Politics	17	World	11	Damage	7
Disease	78	Reclusion	17	Loss	11	Fake news	7
Contagion	74	Risk	17	Hygiene	10	Globalization	7
Isolation	57	Health	17	Freedom	10	“We will get out”	7
Social distancing	54	Conspiracy	16	Limitations	10	Opportunities	7
Face mask	54	Contagious	16	Nature	10	Panic	7
Danger	51	Hardship	16	Boredom	10	Sacrifice	7
Anxiety	48	Social	16	Poverty	10	Nuisance	7
Economic crisis	42	Suffering	16	Problems	10	Life	7
Loneliness	39	Family	15	Rebirth	10	Environment	6
Vaccine	39	Lockdown	15	Science	10	Block	6
Crisis	36	Health service personnel	15	Difficulties	9	Mismanagement	6
Hospital	33	Anger	15	Exaggeration	9	Control	6
Deceases	32	Symptoms	15	Smart work	9	Therapy	6
Change	30	Sadness	15	Prevention	9	Latex gloves	6
Uncertainty	28	Ignorance	14	Responsibility	9	Infection	6
Worry	27	Influenza	14	Reopening	9	Unsafety	6
Home	25	Restrictions	14	Healthcare	9	Invisible	6
Intensive care	25	Hope	14	Unknown	9	Sick	6
Elder	23	Chaos	13	Disinfectant	8	No_rights	6
Distance	23	Respiratory_complications	13	Falsehood	8	Protection	6
Research	23	Pain	13	Unpreparedness	8	NHS	6
Misinformation	22	Work	13	Missing (loved ones)	8	Stress	6
Careful	20	Remoteness	13	No_work	8	Time	6
Economy	20	staying at home	13	Psychosis	8		
Emergency	20	Beloved	12	Rules	8		
Pneumonia	19	Media	12	Observance	8		

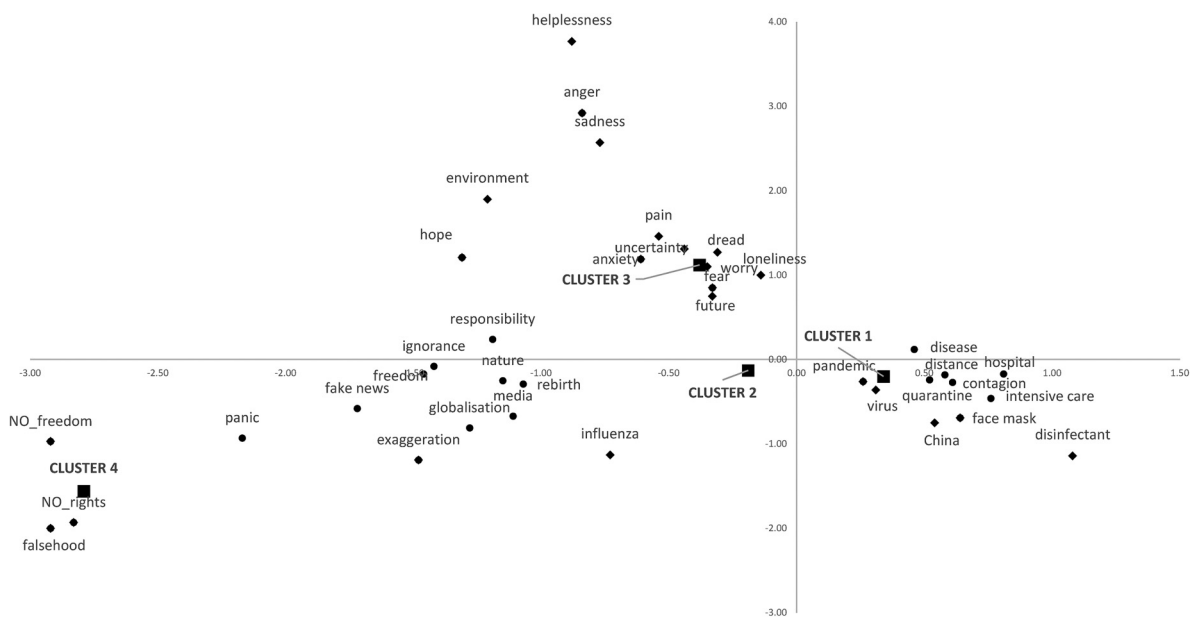


Figure 1. Correspondence factor analysis.

this cluster “Citizens driven by Social Representations anchored to factual COVID-19 pandemic data.” In fact, they mainly use categories that refer to its definition (e.g.: “Disease,” “Virus” from “China”), its consequences (e.g.: “Intensive care,” “Deceases”) and the strategies to adopt in order to cope with it (e.g.: “Face mask,” “Social distancing,” “Disinfectant,” “Smart work,” “Swabs”). This cluster distinguishes itself from the other three clusters by the age of the subjects, who are slightly younger, by the prevalence of university graduates (while in the other three clusters graduates prevail) and by having a more left-wing political orientation. This cluster is placed significantly ($V\text{-Test}1 = 12.4$, $V\text{-Test}2 = -7.6$) in the lower right-hand part of the factorial plane, in line with the contents that emerged in the two axes.

Cluster 2, second in terms of number of subjects, gathers individuals who seem to reflect on the complexity and criticality raised by the pandemic situation: the necessity (“Need”) and “Responsibility” of “Politics” in supporting the advancement of “Science” and “Research”; but also to the “Unpreparedness” and “Ignorance” of all (politicians, scientists, “Media,” and common people) in front of a new “Unknown” virus that risk (“Risk”) to create “Disinformation” around the pandemic situation, to foster situations of “Panic” and “Psychosis” and to cause huge damages (“Damage”), also of “Social” nature, all over the world (“Globalization”). For these reasons we have named this group “Citizens with low confidence in anti-pandemic preventive measures by government.” This cluster is placed significantly ($V\text{-Test}1 = -3.3$, $V\text{-Test}2 = -2.3$) in the lower left-hand side of the factorial plan, in line with the contents that emerged in the two axes.

Cluster 3 is characterized by categories referring above all to the emotional dimension generated by the pandemic. We have labeled this group “Emotional people” because it is composed of citizens emotionally impacted by strong “Fear” of the virus, “Anxiety,” “Anger,” “Sadness,” “Uncertainty,” and, as we will show in the next paragraph, in favor of restrictive anti-spread policies. The terms “Beloved” and “Future” then complete the picture, contextualizing where their emotions are directed. This cluster is distinguished by a higher percentage of subjects who declare themselves religious and is placed significantly ($V\text{-Test}1 = -5.9$, $V\text{-Test}2 = 17.7$) in the upper-left part of the factorial plan, in line with the contents that emerged in the two axes.

Cluster 4 is composed of a minority of subjects, only 26, who seem to question the actual reality of the pandemic. We have named this cluster “Minority group of Citizens driven by denial of COVID-19.” The most recurrent categories in this cluster are: “Conspiracy,” “No Freedom,” “Falsehood,” “Control,” “No_Rights,” “Exaggeration,” and “Influenza,” the latter term indicating that COVID-19 is no more than a bout of “flu.” In this cluster there are more people who declare they are nonreligious and, compared to the political

orientation, they are a bit more shifted to the right (although the average falls within the center-left range). This cluster is placed significantly ($V\text{-Test}1 = -19.6$, $V\text{-Test}2 = -11.2$) in the extreme left lower part of the factorial plane consistently with the contents that emerged in the two axes.

The psychosocial anchoring. In order to detect how different representations of the coronavirus/COVID-19 are anchored in psychosocial variables, an Anova oneway was used to compare the four clusters on all the psychosocial variables included in this work (Table 5).

First of all, it should be noted that Cluster 4, Minority group of Citizens driven by denial of COVID-19, differs significantly from all the other three clusters in almost all the variables: it has higher scores in Vaccine Hesitancy, Conspiracy beliefs, COVID-related conspiracy beliefs, Reactance and Info Contamination; it also has lower scores in positive Attitude towards the COVID vaccine, Faith in science, Restriction, Psychological dimension, and Perceived Coronavirus Threat.

Cluster 3, the Emotional people, reported significantly higher scores in the Perceived Coronavirus Threat, Psychological dimension scale, and Restriction scales, differing mainly from Clusters 4 and 1. Cluster 1, Citizens driven by Social Representations anchored to factual COVID-19 pandemic data, report significantly lower scores in Vaccine Hesitancy, Reactance, Info contamination, Conspiracy beliefs, and COVID-related conspiracy beliefs and higher scores in positive Attitude towards vaccines and Faith in science. This cluster differs mainly from Cluster 4, but also from Cluster 2 (Reactance and Info contamination) and Cluster 3 (Perceived Coronavirus Threat).

Cluster 2, Citizens with low confidence in anti-pandemic preventive measures by government, reports intermediate scores, often close to those of Cluster 1, and differs mainly from Cluster 4. There is no significant difference between the four clusters on the News Scale.

Discussion

Through this survey, we set out to analyze the social representations of coronavirus/COVID-19 that emerged during the first months of the pandemic, when the vaccine was not yet available (WHO, 2021). The results of the lexical correspondence analysis indicate the existence of four thematic polarities describing different facets of the object of social representations.

In the first polarity (“The consequences of the pandemic”), it is evident that the respondents relied on a cause/effect principle; in this case, in fact, the statements appear as the effects resulting from the coronavirus/COVID-19 (e.g.: “Contagion,” “Pandemic,” “Intensive care,” etc.). Thus, as found in previous studies (Fasanelli et al., 2020; Rateau et al., 2020; Salas-Durán et al., 2021),

Table 3. List of the four clusters and their characterizing categories with V-test $\geq |1.96|$.

Cluster 1 (333 subjects)		Cluster 2 (131 subjects)		Cluster 3 (109 subjects)		Cluster 4 (26 subjects)	
Categories	V-Test	Categories	V-Test	Categories	V-Test	Categories	V-Test
Quarantine	6.8	Misinformation	7.9	Anxiety	7.5	Conspiracy	9.7
Face mask	6.00	Politics	6.2	Fear	7.3	No_freedom	5.2
Hospital	5.0	Research	5.6	Anger	6.9	Falsehood	4.7
Pandemic	4.9	Science	5.0	Sadness	6.2	Control	4.2
Intensive care	4.8	Unknown	4.7	Uncertainty	6.2	No_rights	4.2
Contagion	4.7	Responsibility	4.7	Loneliness	6.1	Exaggeration	2.9
Elderly people	4.5	Unpreparedness	4.4	Impotence	5.8	Influenza	2.4
Social distancing	4.2	Psychosis	4.4	Worry	4.6		
Pneumonia	4.0	Ignorance	4.3	Hope	4.2		
Home	3.6	Risk	4.1	Pain	3.3		
Deaths	3.0	Needs	4.1	Suffering	3.3		
Distance	2.8	Sacrifice	4.1	Beloved	3.0		
Virus	2.7	NHS	3.7	Loss	2.5		
China	2.6	Chaos	3.4	Future	2.5		
Disease	2.5	Damage	3.2	Reclusion	2.1		
Smart work	2.5	Media	3.1				
Disinfectant	2.2	Social	2.8				
Swabs	2.2	Help	2.5				
Symptoms	2.1	Globalization	2.5				
		Panic	2.5				
		Observance	2.2				
		Danger	2.1				

Table 4. Socio-demographic characteristics of the four clusters.

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Sex	M = 131 (39.3%) F = 202 (60.7%)	M = 61 (46.6%) F = 69 (56.7%) Other = 1 (0.8%)	M = 22 (20.2%) F = 86 (78.9%) Other = 1 (0.9%)	M = 11 (42.3%) F = 15 (57.7%)
Average age	$\bar{X} = 36.9$	$\bar{X} = 40.0$	$\bar{X} = 39.1$	$\bar{X} = 39.0$
Main qualification	2nd level degree or a degree prior to 1999 (4–5 years): 32.1%	High school diploma (5 years): 35.9%	High school diploma (5 years): 38.5%	High school diploma (5 years): 30.8
Main occupation	Full-time employee: 47.4%	Full-time employee: 46.6%	Full-time employee: 46.8%	Full-time employee: 53.8%
Religious (yes/no)	Yes = 35.7% No = 64.3%	Yes = 37.4% No = 62.6%	Yes = 51.4% No = 48.6%	Yes = 26.9% No = 73.1%
Political orientation:	Average = 2.86	Average = 3.19	Average = 3.40	Average = 3.77
Scale from 1 = FarLeft to 7 = FarRight	Between left and center-left	Between center-left and center	Between center-left and center	Between center-left and center

Note: M = Male; F = Female.

in this context, one of the basic functions of social representations is evidenced: to provide elements so that individuals can understand and explain their reality, in order to intervene in it through everyday practices (Abric, 2003; Apostolidis et al., 2020; Jodelet, 2015; Moscovici, 2003; Páez & Pérez, 2020a).

In the second polarity (“Critical positions towards the pandemic”), it appears that the statements were given through a critical and hermeneutic approach according to the principle that, when faced with a new and unknown situation, the naive person still attempts to give themselves an explanation by drawing upon commonsense knowledge

Table 5. Oneway Anova: comparison between the four clusters on psychosocial variables.

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	F	df	p
Vaccine hesitancy	2.38 ^a	2.47 ^b	2.49 ^c	4.70 ^{abc}	25.34	3–595	.000
Attitudes towards the COVID vaccine	5.58 ^a	5.55 ^b	5.48 ^c	2.90 ^{abc}	21.59	3–595	.000
Faith in science	4.47 ^a	4.37 ^b	4.24 ^c	3.58 ^{abc}	8.19	3–595	.000
Conspiracy beliefs	3.27 ^a	3.45 ^b	3.75 ^c	5.79 ^{abc}	13.17	3–595	.000
COVID-related conspiracy beliefs	2.68 ^a	3.00 ^b	3.34 ^c	6.59 ^{abc}	24.69	3–595	.000
Restriction scale	5.45 ^a	5.09 ^b	5.57 ^c	3.12 ^{abc}	20.93	3–595	.000
Info contamination scale	2.56 ^{abc}	3.13 ^{ad}	3.17 ^{be}	5.21 ^{cde}	25.64	3–595	.000
Reactance scale	1.95 ^{ab}	2.38 ^{ac}	2.16 ^d	5.29 ^{bcd}	36.72	3–595	.000
Psychological dimension scale	2.80 ^a	3.02	3.49 ^{ab}	2.42 ^b	5.35	3–595	.001
News scale	3.53	3.67	3.63	3.25	.59	3–595	n.s.
Perceived Coronavirus Threat	3.92 ^{ab}	3.87 ^c	4.83 ^{acd}	1.94 ^{bcd}	22.67	3–595	.000

Note: The letters in superscript indicate the average differences in the Bonferroni post hoc test (identical letters correspond to significant differences between the two groups with $p < .05$).

(Jodelet, 2005, 2015; Jovchelovitch, 2008; Marková, 2006; Moscovici, 2003). A wide variety of positions (Doise, 1992, 2002, 2011) on the “coronavirus/COVID-19” thus emerges: from the one that believes that the pandemic may be the result of a conspiracy to deprive humans of their freedom, to the one that even denies the existence of the virus and the emergency, and finally the one that reflects on how a renewed relationship between humanity and nature can in the future contribute to ensuring that similar situations do not occur again (Apostolidis et al., 2020; Bateson, 1972; Pizarro et al., 2020).

The third polarity (“Emotional dimension associated with the pandemic”) collects associations produced from the emotions that respondents experience in relation to the pandemic (e.g.: the sense of “Helplessness,” “Uncertainty,” “Anger,” “Fear,” “Anxiety”). In fact, the emotional dimension is configured as necessary to produce the tension for consensus and sharing of meanings and also for the activation of the group protection system against threatening situations (Aikins, 2012; Rimé, 2008), as evidenced in several studies in the context of the COVID-19 pandemic (Apostolidis et al., 2020; Eiguren et al., 2021; Fasanelli et al., 2020; Páez & Pérez, 2020; Pizarro et al., 2020; Rateau et al., 2021; Salas-Durán et al., 2021).

If the emotional dimension has the function of creating an alert system before new situations (Aikins, 2012; Breakwell, 2020; Jodelet, 2015; Moscovici, 2003; Rimé, 2008), the practical orientation, in turn, allows one to activate references on what to do before this unknown and unfamiliar context, such as the COVID-19 pandemic. Thus, in the last polarity, “Objective aspects of the coronavirus/COVID-19,” we find associations stated in objective form without expressing our own judgement: the coronavirus is a virus from China that causes the “flu” and requires health precautions such as mask-wearing and use of disinfectant.

Clustering analysis allowed us to analyze psychological and psychosocial anchoring and thus to highlight the

principles through which different groups of subjects process and organize their knowledge of reality (Almeida, 2009; Doise, 1992; Doise et al., 1992; Melotti et al., 2019). For the analysis of this process, the following variables were used: vaccine hesitancy, attitudes towards the COVID-19 vaccine, faith in science, conspiracy beliefs in general, COVID-19-related conspiracy beliefs, restriction, info contamination, reactance, psychological dimension, news, and Perceived Coronavirus Threat.

In psychological anchoring (Doise, 1992; Doise et al., 1992), we identified four clusters: (Cluster 1) “Citizens driven by Social Representations anchored to factual COVID-19 pandemic data” who in generating the representation seem to rely on the principle of abstention of judgment and describe objectively what the coronavirus/COVID-19 is and the health and social consequences related to it; (Cluster 2) “Citizens with low confidence in anti-pandemic preventive measures by government” whose generating principle of representation is constituted by the attitude that leads them to reflect on the responsibilities of politics in facing the emergency, on the role played by research in trying to get us through the situation, on the work of the media in presenting the facts, and on the socio-economic consequences resulting from the state of emergency; (Cluster 3) by way of confirmation of the hypotheses we had formulated, we then find “Emotional people” whose generating principle is constituted by the emotional experiences experienced during the pandemic; and finally, (Cluster 4) again by way of confirmation of the hypotheses formulated, a minority was identified, represented by “Minority group of Citizens driven by denial of COVID-19” whose generating principle appears to be that of the denial of the danger or existence of the virus which leads them to embrace conspiracy theories.

By comparing the four clusters it was possible to analyze the psychosocial anchoring (Doise, 1992; Doise et al., 1992) of the social representations of the coronavirus/COVID-19. First of all, it is very interesting to observe

the scores characterizing “Minority group of Citizens driven by denial of COVID-19” (Cluster 4). Consistent with what has been asserted in the conspiracy literature (Allington et al., 2020; Islam et al., 2020; Jolley & Paterson, 2020; Lewandowsky et al., 2015; Mancosu et al., 2017), in comparison with the other three groups, this cluster is the one that is least of all confident in science, most hesitant about vaccines, and least willing to vaccinate when the COVID-19 vaccine became available, not recognizing COVID-19 as a real threat. Furthermore, this group is the most trusting of conspiracy beliefs (including those related to COVID-19), demonstrating a lack of approval for the emergency policies implemented by the government and stating that COVID-19 has caused them few psychological repercussions (Psychological dimension scale).

In this respect, it is precisely “Emotional people” (Cluster 3) who report having experienced more psychological problems related to COVID-19 and, perhaps because of their strong fear of the virus, they are also those most in favor of the restrictive intervention strategies implemented by the government—it is well known in the literature that when a society expresses a strong fear of an “other” or an unknown object, it tends to call for more restrictive policies, which often involve the restriction of individual freedoms and drift towards authoritarianism (Haggard & Kaufman, 2021; Jost et al., 2003, 2007; Pizarro et al., 2020; Talò, 2010).

It is also worth noting that “Citizens driven by Social Representations anchored to factual COVID-19 pandemic data” (Cluster 1) are those who stand out in this survey in terms of adopting a very rational approach to the pandemic emergency: in the face of the recognition of the threat posed by COVID-19, they still show confidence in science, not hesitating in the face of vaccines, not even in the face of the possible vaccine against COVID-19 when it became available. This cluster does not share conspiracy beliefs (including those related to COVID-19) and demonstrates a positive attitude towards government intervention efforts.

Finally, “Citizens with low confidence in anti-pandemic preventive measures by government” (Cluster 2) appear to be in a very similar position to Cluster 1, from which, however, they distinguish themselves by feeling angrier that the government is taking away their freedom (Reactance Scale), and less confident that the government is providing accurate information during the crisis (Info Contaminatio Scale), thus demonstrating their propensity to face the coronavirus/COVID-19 emergency with a more critical attitude, as evidenced in the free associations they produced (Freeman et al., 2020).

The historical dimension shows that moments of crisis and large-scale threat, such as the manifestation of diseases, generate social tension and activate preexisting, already solidified and familiar ways of thinking to societies, which operate as socio-cognitive and emotional structures

of reference to groups and individuals, while being updated in the encounter with contemporary ways of thinking and acting in the world (Apostolidis et al., 2020; Jodelet, 2005, 2015; Marková, 2006; Moscovici, 2003). Ambiguities in the field of signification and variations in the subjects’ position-taking are thus expected, given the diversity of value systems and sociocultural contexts guiding anchoring processes and practices concerning the object of social representation (Doise, 1992; Moscovici, 2003).

According to the results presented in this study, different organizing principles (Doise, 1992, 2002) and knowledge modalities constituted the social representations of coronavirus/COVID-19, involving practical rationality, affective dimension, conspiratorial thinking, and questioning of governmental measures of social isolation. The results corroborate data from previous research conducted in different countries, indicating the strength of the sharing of these meanings and their social density (Eiguren et al., 2021; Fasanelli et al., 2020; Pizarro et al., 2020; Rateau et al., 2021; Salas-Durán et al., 2021). They contribute to the debate on the severity of the effects of negationist beliefs on protective practices involving public health issues in the era of social networks, and also point to the importance of promoting strategies to demystify these meanings considering the variability of rationalities and social representations elaborated by different groups and subjects of experience.

Limitations and future research

This study aimed to investigate the social representations of coronavirus/COVID-19 among Italian individuals during the first wave of the COVID-19 pandemic and the national lockdown. Complying with ethical guidelines in scientific practice and biosafety measures, the study was developed by convenience sampling and applying an online questionnaire to the general adult Italian population.

Among the limitations of the study, which may indicate biases in the relationships identified between the variables analyzed and the social representations of the coronavirus/COVID-19, we can highlight the composition of the sample with a higher concentration of people with a higher level of education and the use of social media to collect the research data, as well as the fact of referring to a specific period of the pandemic, when people had little information and the vaccine against COVID-19 had not yet been created. Furthermore, the political orientation of the sample in this study is biased because it is mainly distributed between the left and the center-left. This did not allow us to replicate the trend widely documented in the literature showing that factors associated with coronavirus-related conspiracy beliefs include right-wing political positioning, higher religiosity, and conservative values (Allington et al., 2020; Freeman et al., 2020; Islam et al.,

2020; Jolley & Paterson, 2020; Pizarro et al., 2020). The results found in this research are, therefore, not representative of the Italian population in general or of the broader context of the different waves and cycles of the pandemic in Italy.

We suggest developing new studies with different samples of the population to understand the psychosocial impacts of the pandemic on people's daily lives and the possible transformations occurring in the social construction of the "coronavirus/COVID-19" representation object, in the light of the current reality in which Italian society is facing the pandemic. Investigations of this nature can contribute to the analysis of the different positions assumed by people and to the elaboration of markers in the field of public policies that guide intervention measures by considering the dialogical relationship of symbolic-practical universes in the way individuals and groups live, think, and act in the world.

We also recommend conducting studies that investigate in more detail the relationship between new forms of social communication through online media and their action on the production of social representations, whose effects manifest themselves in widely shared behaviors and practices, such as collective fear and the awakening of conspiratorial beliefs. This information not only refers to a specific social object, such as the coronavirus/COVID-19, but reveals the very functioning of societies and social thinking that regulates everyday practices and poses challenges to us, especially in times of crisis.

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ORCID iDs

Giannino Melotti  <https://orcid.org/0000-0002-6452-1679>

Eemeli Hakoköngäs  <https://orcid.org/0000-0002-4828-2276>

Monica Pivetti  <https://orcid.org/0000-0002-8378-2911>

Notes

1. In lexical CA, the percentage of total inertia is always very low because it is distributed over the number of factors that it is theoretically possible to extract ($k-1$, k being equal to the number of categories, in this case $k = 121$).

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