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RESEARCH ARTICLE

Free choice in the making: Vaccine-related activism as an alternative form of citizenship during the Covid-19 pandemic.

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ABSTRACT: The paper analyzes how free vax communities reframe health emergency during Covid-19 pandemic. We examined, through a digital ethnography on the main Italian free-vax online communities - Comilva, Corvelva and Movimento 3V – the public contestation of anti-Covid health policies by comparing their different styles of vaccine-related activism. Contesting health policy during pandemic was not just a matter of misinformation or related to the spreading of fake news, but actions and claims of free vax communities were based on specific processes of knowledge-making and biopolitics. The Science and Technology Studies (STS) framework, adopted throughout the analysis, provides the opportunity to review the vaccination controversies debate, by focusing on free vax public activities, aimed at counteracting mainstream knowledge and health policies adopted by the government to face the Covid-19 emergency. The analysis offers an entry point for understanding the nexus among the claims of free vax communities and the emerging idea of citizenship related to health, individual rights, and public participation in contemporary society.

KEYWORDS: Covid-19, health citizenship, alternative epistemologies, vaccine hesitancy, vaccine-related activism

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1. Introduction

Our paper aims to highlight how vaccine hesitancy and the public contestation of vaccination policies represented alternative forms of citizenship during the Covid-19 pandemic. Our analysis focuses on 1) the constitutive forum (Collins and Pinch 1979) in which the 2) claims and mobilised knowledge by the free vax communities develop (e.g., biomedical, political, scientific) and 3) the institutional actors with whom communities dialogue to understand different styles of vaccine-related activism. Analysing how vaccine-related activism is performed by discrediting anti-Covid vaccinations policy and by promoting alternative epistemologies can bring a better understanding of the new emerging citizenship proposal developed during the Covid-19 pandemic. Vaccine hesitancy, as a specific concept related to doubts or refusal of mandatory vaccination as a health policy, is not a recent issue being as old as vaccination itself (Wolfe and Sharp 2002). However, it cannot be reduced to populistic or anti-scientific movements (Lello 2020), conspiracionism, or mere misinformation. To overcome any normative perspective on vaccine hesitancy, a Science and Technology Studies (STS) outlook was adopted using the concept of symmetry (Bloor 1976) that disavows an a priori ontological difference between "science" and "non-science". Our analysis could provide the opportunity to reflect further on the current epistemic instability (Harambam 2021; 2020) due to the exacerbated role of individual experience in sense-making processes (van Zoonen 2012) that has assumed relevance during Covid-19 pandemic. In this context, to achieve a deeper understanding of vaccine-related activism in Italy during the pandemic, a multi-sited (Marcus 1995) digital ethnography (Hine 2020) of free vax communities from January 2020 to July 2021 is presented. After a first attempt to map Italian vaccine-related movements, the analysis moved on to three relevant communities: Comilva, Corvelva and Movimento 3V (M3V). The Web offered a worthwhile outlook since it played a crucial role during the Covid-19 pandemic: social media became spaces for public dispute, ranging from bodily experiences and their ethical implications. Therefore, the Web and the social media can be conceived as generative loci for new contestation and new fora for political and scientific debate, new questions for democracy, and original styles of activism (Bory et al. 2022a) supporting new repertoires of strategies for online mobilisation (Petersen et al. 2019). First, an overview of theoretical perspectives on alternative epistemologies to approach refused knowledge productions is addressed, with the objective of defining vaccine hesitancy and related activism as a particular request for participation in health issues from below. The paper deepens the methodological choices regarding the online ethnography of the free vax community in Italy during the pandemic. Finally, through a deeper analysis of vaccine-related style of activism, we frame vaccine hesitancy as a different proposal of health citizenship, in which the main claims are related to access to scientific knowledge, awareness as a precondition for free choice and self-determination as a fundamental right for citizens. Frequently in the literature, labels such as "no vax" or "anti-vax" are used to describe social movements opposing mandatory vaccination, but we consider the label "free vax" more fitting to our case. It is a label that may better represent the heterogeneity of behaviours that range from total to partial refusal of vaccination but find common ground in claiming free choice of vaccination (Francia et al. 2019). We further build upon two factors: 1) ethnography has shown that activists find it less stigmatising and 2) free vax indicates a common position among social movements opposing compulsory vaccination.

2. Alternative epistemologies: Symmetries and the claim-making approach to refused knowledge productions

Generally speaking, an STS outlook calls for a symmetrical perspective (Bloor 1976) that refuses an a priori ontological difference between "science" and "non-science". Consequently, it is convenient building upon a conception of knowledge as the outcome of always situated activities (Haraway 1988, 1989; Suchman 2002). Although a symmetrical approach has been at the core of recent debates among STS (Sismondo 2017; Lynch 2017), it did not reduce its interpretative strength. Moreover, STS scholars often engage with the issue of open contestation towards institutional science and the processes of decision making that it supports. A symmetrical approach frees research from judgements about the ultimate truth or rationality of knowledge claims under examination without an endorsement of those discredited systems (Lynch 2020). Several cases have emerged from the STS literature about the uneasy relationship between institutional scientific knowledge and non-institutional knowledge. The role of lay expertise in knowledge production processes is well known in STS literature (Epstein 1996), particularly in studies about biomedicine (Pickersgill et al. 2015; Pols 2014), patient status (Conrad and Gabe 1999; Kerr et al. 1998; Kerr, Cunningham-Burley and Tutton 2007; Panofsky 2011; Tutton 2007), health (Rabeharisoa et al. 2014; Epstein 1996) and environmental-related activism (Coburn 2005; Irwin 1995). Such studies have shown how health activist groups demonstrate the importance of challenging the use of science in contemporary health policy (Blume 2006). In biomedicine and health-related issues, key research has revealed processes about patients' groups mobilised to provide scientific evidence produced by lay persons to reform clinical trials (Epstein 1996). Similarly, groups of organised patients claim for a more inclusive approach focused on the co-creation of health knowledge and definition of new therapeutic paths for understudied diseases (Rabeharisoa and Callon 2004). The HIV/AIDS groups discussed by Epstein (1996) claimed the right and the competence to formulate an alternative set of demands and priorities in the language of science. Similarly, especially during the Covid-19 pandemic, some free vax organisations have attempted to ground their claims in the language of science, defining their own constitutive forum (Collins and Pinch 1979).

In short, citizens are not necessarily hostile to institutional science nor are they all ignorant and incapable of making sense of their own condition when frustrated by environmental or health stress; the differences between institutional sciences and other accounts on complex issues, especially in relation to health and environmental justice, tend to produce more legitimate and less legitimate accounts, respectively (Wynne 2015).

Acknowledging this empirical experience, STS provided the analytical and conceptual bases for dealing with alternative sources of knowledge (Felt et al. 2007) as the case of so-called "refused knowledge" (Bory et al. 2022; Crabu et al. 2022). Refused knowledge refers to sets of knowledge that are relatively stable and supported by heterogeneous experts and lays but are rejected or denied by institutions and the scientific community.

Inspired by the STS literature scholars into data activism, we can label these groups as alternative epistemologies (Milan and van der Velden 2016). Such a concept allows us to address how groups frame their knowledge-building processes as a critical and sometimes openly antagonist reaction to an institutional source of knowledge. However, on the one hand, there are alternative epistemologies groups that openly engage as antagonists; on the other, there is institutional science that refuses certain sources of knowledge if not even

ostracising claims of alternative epistemologies as unacceptable or unmotivated. Frequently, this second case implies the reproduction of those frameworks of interaction between institutional science and the general public that participation was supposed to overcome: that is a sneaking paternalism based on the supposed ignorance of non-scientists (Bucchi 2008). These processes are complex; therefore, paradigms of citizenship (e.g., Bennet, Wells and Rank 2009), which distinguish between dutiful versus actualising citizens, seem to offer a limited interpretation of grassroots groups and about those involved in attempts at public engagement. The current context after the pandemic shock opened a new phase of epistemic instability (Harambam 2021; 2020). Institutional science during the health crisis related to the Covid-19 pandemic struggled in providing immediate response to an extremely uncertain context. Politics required answers with a timing that was hardly compatible to that of science. This happened in Italy (Crabu et al. 2021), but the same applies to other countries. Governments in different countries coped with the pandemic differently according to their own expert advisers—some through tighter restrictions, while other countries with softer ones. In the case of restrictions for mobility first and anti-Covid vaccination second, already existing cleavages deepened. The case of vaccine hesitancy and the reconfiguration of social movements that oppose vaccination during the pandemic offer the opportunity to investigate how refused knowledge communities may propose their truth claims. As the literature on health citizenship and biocitizenship show, alternative epistemologies contribute to different conceptualisations of citizenry.

3. Vaccine hesitancy: Biocitizenship and emerging forms of participation in health issues

3.1 Health as an engine of public participation and (bio)citizenship

In the last two decades, activism related to health issues has increased significantly to become an emblematic feature of contemporary citizenship (Roberts and Tutton 2018). Specifically, the ideology of public health in Western biomedicalised society (Clarke et al. 2003) pertaining to individual rights and responsibilities has taken on increasing weight. Citizens of biomedicalised societies have been encouraged to take responsibility for their own health and to think for themselves regarding health choices. A growing number of educated parents have criticised the available vaccination literature, and the attitudes of practitioners were considered deeply unsatisfactory (Blume 2006). It is therefore an ideological conflict at the heart of public health among individual and collective views on health. Within this ideological conflict, health, however, from an individual issue, is instead collectivised from below, with the emergence of new identities and knowledge from the body and everyday practice. The definition of health, wellness and disease is increasingly affected by biomedical innovation in biology, genetic engineering and information technology, leading to new forms of citizenship, since lays acquire a new centrality in managing and sharing knowledge and information about their bodies and health (Clarke et al. 2003). To define this process, several authors have introduced the notion of "biological citizenship": a new form of belonging in the era of biomedicine, biotechnology and genomics, in which subjects experience themselves in biological terms. According to the literature, biocitizenship can be considered 1) as compensation for collective bodily injury by the state (Petryna 2002; 2004), 2) as a mode of biopolitical governance (Rose and Novas 2005) 3) and as a form of health advocacy and activism (Petrakaki et al. 2021). Focusing on biocitizenship as a mode of biopolitical governance, for example, implies the expansion of biopolitics (Foucault 1990; Rose and Novas 2005) over citizens' bodily experience through

regulations and norms. Such a view drives us to interpret mandatory vaccinations, quarantines and school fitness programmes as vivid examples of biocitizenship practices designed by national governments to construct a normative national body (Happe et al. 2018). Vaccination as health policy can be interpreted as a specific biopolitical governance applied to the masses. Conversely, vaccine hesitancy can be re-interpreted as bioresistance to biological citizenship defined by the state. Health activism, in fact, implies a challenge to existing order and power relationships that are perceived to influence health negatively (Zoller 2005) and for this reason health social movements (including formal and informal organisations, supporters and networks) try to change embedded practices and health policy by challenging the existing power relationships and promoting social change. Associations, groups and local committees, in defence of free choice regarding vaccination, seek to challenge the status quo by resisting health policy delivered to the Covid-19 pandemic. Citizenship in the contemporary era of biomedicine emerges in struggles over individual identities, forms of collectivisation, demands for recognition, access to knowledge and claims to expertise (Bory et al. 2022) as it will be discussed in the next section.

3.2 Vaccine hesitancy and vaccine-related activism

Social scientists dealing with vaccination moved from analysis based on the traditional concept of "vaccine resistance" or "vaccine refusal" to a more complex definition of "vaccine hesitancy" (Dubé et al. 2013; Larson et al. 2014; Yaqub et al. 2014), with the aim of eliciting a much wider spectrum of vaccine-related attitudes. Vaccine hesitant individuals also fall along a continuum of positions: they may refuse some vaccines but accept others; they may delay vaccines or accept recommended ones and be unsure about doing so (Dubé et al. 2013; MacDonald and Sage 2015). Refusal or acceptance are thus not clearly distinct alternatives. One example, in fact, is the so-called 'vaccination inertia' (Peretti-Watel et al. 2019; Sobo et al. 2016), i.e., the choice to vaccinate based on actions traditionally taken in the management of vaccine-age offspring. However, other studies (Sobo et al. 2016) reported blurred positions, such as those of "selective vaccinators", that is, hesitating only for certain vaccines, as in the case of trivalent vaccines for children. The SAGE Working Group on Vaccine Hesitancy has identified some determinants that may favour a hesitant position regarding vaccines. These determinants can be 1) social, individual or group, thus related either to past experiences or to information and beliefs shared by the relational network in which people are embedded; 2) contextual, that is, related to sociocultural conditions that might predispose to specific beliefs about vaccination, an example might be a religious belief and/or economic or political factors; 3) specific vaccine-related issues such as fear of injections, previous relationship with health care personnel, and so on. These determinants vary significantly across countries. Goldenberg (2021) indicated that vaccine hesitancy was most common in the industrialised Global North and usually pertained to highly educated families and individuals. In Italy, it has been noted that one of the factors affecting vaccine hesitancy was the mother's educational qualification. A high educational qualification in mothers fostered greater hesitation about vaccines. The majority of hesitant or delayed paediatric vaccinations were mainly in Northern Italy, with a majority in the regions of Veneto, Emilia-Romagna and Bolzano (ECDC 2016).

The conceptualisation of vaccine hesitancy as an outcome behaviour "resulting from a complex decision-making process that can be potentially influenced by a wide range of factors" (MacDonald and Sage 2015, p. 4162) seems to be based on an individualistic conception of health, but by analysing its practices, hesitancy also elicits collective forms of resistance to biomedical knowledge. Nonetheless, publicly hesitators tend to be ignored by the media or trivialised by scientists, policy makers, and physicians (Goldenberg 2021). Often,

however, hesitators are negatively portrayed in the media and sometimes in academia as scientifically illiterate, irrational and wilfully anti-science (Blume 2006). More recently, vaccine-related activism has been understood by scholars as a social movement composed of anti-vaccine groups and/or anti-vaccine activists, not rarely associated with conspiracy accounts or misinformation spreading (Stano 2020; Jamison et al. 2020). However, to avoid these normative perspectives, Ward (2016) acknowledged the complexity behind vaccine-related activism by elaborating on three types of mobilisations that social scientists should consider—the *anti-vaccine movement*, *marginally anti-vaccine movements*, and the *occasional critical vaccine movement*—to underline the heterogeneity of the social movements against vaccination. Davis (2021) highlighted the connection between hesitancy and the broader context of contesting attitudes in democracy on the Web. Therefore, critical citizenship related to health and new forms of biopolitical participation represent the outcome of increased circulation of information by new media and mass education and not necessarily of loss of trust in science. By connecting theorisations of biocitizenship with analyses of technosociality, Petrakaki et al. (2021) indicated that "while much work on biocitizenship focuses on genetic conceptions of health, recent studies begin to engage with the role of the Internet and social media in bringing together patients in online communities" (p. 2). Digital media does not merely facilitate the collective organisation of individuals around issues such as common health conceptions (Petersen et al. 2019), but they actively generate distinct ways of engaging as digital health citizens (Petrakaki et al. 2021). Indeed, digital technologies contribute to producing health citizenship enacting communities at the intersection of biosociality and technosociality. This perspective echoes three general strands of public resistance to health governance:

1) The rejection of prevention pursued through a biomedical approach;

2) The revival of alternative or complementary medicines that had seen long years of marginalisation;

3) The emergence of movements in favour of certain treatments for diseases with high mortality or treatments not recognised by the scientific community (Iorio 2018).

Distrust in vaccination can be conceptualised both as a way of resisting and opposing health governance and how institutional scientific knowledge is expressed and as an advanced form of bottom-up participation in the construction of biomedical knowledge and claim for actively participating in biopolitics through control of the body and medical treatment. The case of paediatric vaccination, as studies have shown (Streefland et al. 1999; 2001), could be addressed as a matter of more active demand for participation and involvement in policies for public health management. This situation requires caution when addressing the issue of vaccine hesitancy, both for concepts and categories adopted.

4. Methods

The research evolved from a three-year project of relevant interests in Italy (PRIN17) focused on the refused knowledge community (RKCs). The research design was based on an 18-month (from January 2020 to July 2021) digital multi-sited ethnography (Hine 2020; Marcus 1995) across key associations and grassroots organisations of vaccination hesitants in Italy. The methodological path followed two steps: first, a screening process to map out the online ecology of groups and association, and second, a proper online ethnography that followed a sub-selection of groups across their own online spaces (i.e., websites and social media accounts)

collecting the content (contents, images, comments, links) they shared. The first phase allowed us to map 41 associations now active in Italy for free vaccine choice between local and national options. Most of them (24) were in Northern Italy, with Emilia Romagna being the most populated region (10). The selection criteria for including free vax associations/groups into our screening were 1) websites and/or blogs and 2) continuous activity over time (minimum one piece of content posted per week). The screening gave us back a complex and articulated network, made up of national associations in close connection with local committees and associations sustained by doctors and lawyers who supported free choice. After mapping the Italian free vax movement landscapes[1], we selected three different online groups for deeper fieldwork through digital ethnography understanding of the vaccine-related activism in Italy regarding the pandemic. The selected groups were Comilva, Corvelva and Movimento 3v (M3V) (Table 1). The three chosen groups played a leading role in terms of spreading news, offering counterinformation and organising webinars, online meetings and public gatherings during the Covid-19 pandemic both nationally and locally, thereby presenting different styles of activism to address the controversy about vaccination (see further Table 3).

[1] The mapping is not exhaustive: many groups have only a Facebook page; others are very small, and others are local committees or informal groups.

Table 1 Main Italian free vax associations involved in the ethnography

Group name	*Description*	*Online spaces observed*
Comilva	Comilva is the acronym for Coordination of the Italian Movement for Freedom of Vaccination (Coordinamento del Movimento Italiano per la Libertà Vaccinale). It is one of the oldest groups in Italy focussing on freedom of vaccination (1993) and is responsible for giving legal support to those harmed by vaccines, disseminating information on the risks of vaccination and applying institutional pressure against compulsory vaccination. It also uses a pool of experts through which they conduct studies on vaccine efficacy.	www.comilva.org https://www.youtube.com/user/comilvatrieste https://www.facebook.com/ufficiostampacomilva
Corvelva	Coordinamento Regionale Veneto per la Libertà delle Vaccinazioni (Veneto Regional Coordination for the Freedom of Vaccinations) was founded in 1993 and has as its principle the freedom to be vaccinated. Comilva supports members who wish to undertake a path of free choice vaccination. Corvelva disseminates information on the risks of vaccinations, both online and with ad hoc events. Corvelva supported a pool of experts working to assess the safety of mandatory vaccines (tetravalent).	https://www.corvelva.it https://www.facebook.com/corvelva https://www.youtube.com/channel/UCju4FYwvtWwQlQtD9sIG3-g
Movimento 3V (M3V)	Born as a political party in 2019 lists as a goal supporting constitutional righ‟s (’let's save the constitu”ion") and free therapeutic choice. M3V strives above all to give voice and represent its members by actively participating in regional and local political life. They also promote free information through ad hoc YouTube channels.	https://www.movimento3v.it/ https://www.facebook.com/Movimento3V

Furthermore, it is important to point out that these pages have grown significantly compared to previous years. It was noted that followers on M3V pages have increased by 647% since January 2020. We tracked the same success in the timespan of our digital ethnography for Corvelva: their followers grew by 125,28%[2]. It can be assumed that Covid-19 has, in fact, played an important role in the growth of followers in these communities.

5. Free choice in the making: Vaccine hesitancy movement in the Italian landscape during the Covid-19 pandemic

Our paper aims to deepen understanding of vaccine-related activism and their citizenship proposal during pandemic to better inform the analysis of citizenship paradigms. To this end, a brief examination of vaccine freedom movements in Italy is essential. Free choice movements in Italy can be traced back to 1985, when

[2] We obtained this evidence in an analysis carried out with CrowdTangle by using the module “Intelligence” extracting analytics from the two pages. Comilva, had its page closed in early 2021 so we could not compare it with the other two.

Giulio Tremante founded the League for Freedom of Vaccination in Milan. Later, it evolved into Comilva in an attempt to coordinate associations for paediatric-free vaccination choice. During the 1990s, new associations emerged, especially in the Veneto and South Tyrol, when refusing vaccination for children implied heavy sanctions, ranging from fines to the loss of parental authority. Protests, hunger strikes and signature collections resulted in the approval of Law 210 of 1992, which recognised compensation in case of damage or complications from vaccination; the recognition of damage became one of the cornerstones of support for vaccination freedom (Garofalo 2018). The claim about vaccine damage was followed by the accusation of political-economic interests related to vaccination due to the Tangentopoli scandals. This occurred not only in Italy, since distrust against public institutions fostered by scandals in public administrations was already known (Ward et al. 2019). The event that most recently triggered a strong reaction from the health and vaccination freedom movements happened in 2017, the approval of the "Lorenzin decree" named after the minister who made mandatory as many as 10 paediatric vaccinations to qualify for access to elementary school. The year 2017 was one of heated protests by the national vaccine freedom community: between 2017 and 2019, demonstrations occurred in many Italian cities, up to the most important and participated in Pesaro (12-15,000 participants, 40,000 according to the organisers), followed by more protest waves in Rome and other cities until 2019 (Lello 2020). The free vax movement has often been provocative and controversial, mainly within scientific and political contexts. As an example of the challenges within the scientific forum, in 2018, an article in Nature (Guglielmi 2018) reported on the donation of 10,000 euros in favour of the association Corvelva by the Italian Order of Biologists with the aim of supporting an independent research project aimed at assessing the biological composition of MPRV vaccines and therefore their safety for human health. Although the funding was later withdrawn, Corvelva still raised over 50,000 euros, and a few years later published their study in the journal F1000 Research[3]. Nonetheless, the association between free vax claims and parts of the Italian scientific community remained unclear: for instance, on January 25, 2019, Dr. Bolgan, biologist and scientific consultant for free vax movements, was invited to the conference hosted by the Professional Order of Biologists on the topic of vaccine safety: the moderator introduced Bolgan "as part of that science that does not get the honours but are the backbone of science in Italy"[4] to discuss results of a study on batches of Priorix Tetra vaccine. Several experts close to the free vax communities, in fact, have both biomedical expertise and experience within accredited public institutions. Bolgan, for example, was invited as a consultant for the Italian parliament's enquiry commission about the controversy regarding the use of depleted uranium in shells by the army in 2016[5]. These "hybrid credentials" within institutional and non-institutional fora make the true–false dichotomy related to the legitimacy of knowledge somewhat thorny. This is also the case for elements of the free vax community within the political arena. The opposition to mandatory vaccination in fact was particularly loud among members and supporters of the "Five Star Movement" (Movimento 5 Stelle, M5S), a populist party that was in a government coalition with the far-right League (formerly Northern League) (Siani 2019). M5S has recently taken an official position in support of mandatory immunisation for the anti-Covid vaccine, causing the exit of some party members who supported the claims of antivaccinationists. This is the case, for example, of Sara Cunial. Presently, Sara Cunial, considered a "catalyst of dissent" (Bory et al. 2022b), along with other parliamentarians, continues to advocate for free

[3] The journal is among those adopting an open review and pre-print system, which is still the subject of controversy among scientists. For further insights, see the following: https://www.lescienze.it/news/2016/11/19/news/peer_review_aperta-3315832/ (last access: 5/5/2022). Independent analysis (Thelwall et al 2021) confirm some of the alleged biases.
[4] Ordine dei Biologi Youtube Channel: https://www.youtube.com/watch?v=91_-q66qbMI (last access: 5/5/2022).
[5] http://documenti.camera.it/leg17/resoconti/commissioni/bollettini/html/2016/02/11/71/comunic.htm

vaccine choice in the Mixed Group within parliament. Additionally, new parties have also arisen. This is the case of M3V, which is gaining political traction. During the Covid-19 pandemic in 2020, it garnered nearly 11,000 votes in the northern region of Emilia Romagna, while in 2021 it managed to elect its first representatives in the municipalities of Rimini and Trieste[6]. To address the complexities of the Italian free vax communities, by mapping the websites of the Italian free vax associations, we classified them into three main groups related to their key objectives: 1) Abrogating compulsory vaccinations; 2) Funding of independent scientific studies on vaccines; and 3) Supporting families in obtaining recognition of damage from vaccines (Table 2).

Table 2 Main activities of the free vax movement in Italy

Main objectives	Macro-areas	Main activities
Abrogating compulsory vaccinations	Pressure to political institutions	- Signature collection - Popular initiative bills - Demonstrations, protests and events
Funding of independent scientific studies on vaccines	Scientific research and legitimacy	- Funding for independent scientific studies - Community of experts
Supporting families in obtaining recognition of damage from vaccines	Legal assistance for damaged from vaccine	- Legal support for parents - Sharing and collecting of personal experiences
	Independent information	- Presence on the main social networks - Creation of groups on personal social media and exchange of information - Internet sites and independent newspapers

Local associations tend to pursue more narrowly defined tasks, such as disseminating information they consider reliable or lobbying on a local scale. National associations tend to follow a broader scope, as well as provide more resources and support from members. Therefore, they deal with complex issues such as lobbying on a national scale and funding and promoting independent scientific studies. During the pandemic, the associations for free vaccine choice in Italy played an interesting role in public confrontations: in a period of high uncertainty, they provided information about the risks and properties of vaccinations to their members; they aided those who wished to undertake free vaccine choice; and they lobbied public institutions on several

[6]https://www.comune.rimini.it/elezioni-amministrative-2021;https://www.corriere.it/elezioni/risultati-comunali-2021/trieste_032006.shtml (last access: 5/5/2022).

issues concerning vaccination policy. The pandemic emergency has reconfigured priorities in some ways, both at a macro level in terms of health, political and economic institutions, and at a micro level in terms of individuals. Associations or health movements, including the free vax, intercepted many doubtful people that sought information and a clear interpretation of the pandemic by providing a straightforward interpretation of the crisis supported by their own expertise in opposition to the narratives supported by political and health institutions to overcome the crisis. Three main practices of discrediting official knowledge about Covid-19 emerged during our ethnographic work: 1) the collection of witnesses on adverse reactions to vaccination anti-Covid-19; 2) the use of experts to discredit the latest vaccination platforms; and 3) the collective mobilisations on local and national scales (Table 3).

Table 3 ***Strategies to discredit mainstream knowledge about Covid-19 from the main free vax communities***

Bottom-up practices to discredit official knowledge	Associations	Actors involved	Forum	Resources mobilised
Collecting witnesses	*COMILVA*	Users	Healthcare	Experiential knowledge
Discrediting vaccine platforms	*CORVELVA*	Users and healthcare institutions and scientific or technical committees	Biomedical	Expert knowledge
Public mobilisations	*MOVIMENTO 3V*	Municipal, Provincial, and Local judicial authorities	Political	Political Claims, Constitutional Rights, and Political Action

In the following two sections, the three main strategies for discrediting institutional scientific knowledge and public policies regarding Covid-19 is discussed in two specific subsections: the first focuses of the knowledge claims of the free vax communities and the second on the political claims, highlighting the resources involved to support their claims in different fora and involving specific actors.

5.1 Claiming biomedical knowledge and lay epistemologies: Comilva & Corvelva

Health institutions have put forward mass vaccination as the most valuable and desirable solution for the Covid-19 emergency from since the beginning of the pandemic. As suggested by Fairhead and Leach (2012), the framing of vaccination as a public triumph of technoscientific achievement fosters the perception that those who do not believe in vaccination are ignorant or wilfully misled by celebrity deceivers. Vaccinations, in fact, are often "symbolizing high hopes of lives saved, diseases eradicated, and the power of medical technology in an apparent triumph of science over nature" (Ibidem p. 3). This aspect became even more evident during the Covid-19 pandemic: the health emergency was portrayed using military metaphors moralising the adhesion to health policy, often leading to social conflict (Galantino 2020; Battistelli and Galantino 2021) between social

groups, in which some were portrayed as heroes and others as "folk devils" or a community threat (Cohen 1973). Public resentment emerged against those who hesitated and those who did not (Goldenberg 2021), reducing the issue to a merely positional clash (Gobo and Sena 2019) between two extremes. Corvelva's online communities immediately reacted, raising doubts about the Covid-19 vaccine, suggesting that clinical trials have been somewhat limited in number or even bypassed:

> The feasibility in terms of efficacy of a vaccine for a highly mutagenic RNA virus remains to be understood, but, more or less effective, it is almost certain that the vaccine will come. Will it skip clinical trials? In a substantial part, yes: in case of pandemic, as now, we have already seen the script repeat itself, the vaccine can be placed on the market with a procedure extremely fast skipping in fact most of the trials and certainly those on large numbers. Efficacy and safety will most likely be less verifiable. (Corvelva, 12/03/2020)

If Corvelva counteracts the future vaccine by highlighting the importance of accurate trials, Comilva focuses more on the consistency of the data released by official institutions regarding the risks related to the spread of the virus. In this sense, the epidemiological data, compared with those related to other infectious diseases, such as influenza, should reassure the public that the virus is seemingly not more lethal than influenza. Therefore, Comilva, in an official statement, sked for a "clinical perspective" by requesting the expertise of clinicians for emergency management:

> How many cases would they have with this method of detection? The new virus has entered Italy, as in many other countries, and it is therefore time to address the problem from the clinical perspective. The network of infectivologists and those who deal with infectious emergencies is prepared and has faced and solved in the past much worse situations, we do not need ordinances to deal with the virus! Freedom! Awareness! Reasonableness! (Comilva 27/02/2020)

Comilva also criticised the use of the virus as a tool to promote surveillance health policy, claiming the need to address the emergency from a medical, and not political perspective. Therefore, in the first phase of the pandemic, data on contagions, disclosed daily by the media, are questioned starting with the anti-Covid test, which becomes a controversial object. According to discussions between users of the Comilva Facebook page, we recorded two points at stake: the reliability of the object itself (i.e., Does it release material into our bodies or does it only act by withdrawing material?) and its provenience in economic terms and thus how it relates to the manufacturing company interests. What users seem to agree on is that, unlike anti-Covid tests, antibodies are considered a more reliable measure for determining virus positivity, so they counteract the anti-Covid test by proposing mass antibody tests. The anti-Covid test is an external object, while antibodies, which populate the immune system, remain a more reliable object, which does not endanger health and is unable to give false positives.

> AC: The question is why do they do anti-Covid test and not igg and igm?
>
> DM: Maybe because it's a new disease and they can't make them true yet?
>
> AC: The antibodies? You're kidding right? And yet they can do a reliable anti-Covid test? We've always had the coronavirus, it's a flu virus....
>
> DM: The strains are very different from each other. So, I'm left wondering why they don't do it too. Certainly, the costs are deterring at this time. (Comilva 8/03/20)

Even among the members of the Corvelva community, there are attempts to disassemble the rhetoric of the health emergency, which justifies the restrictions, using epidemiological data. Specifically, the number of deaths in China from other diseases are compared with those from Covid-19 to highlight the comparatively low lethality of the virus. The Covid-19 virus is interpreted by the members of the group as a weapon, capable of destroying world economies and enriching those who profit from the pandemic (i.e., pharmaceutical companies and entrepreneurs). The controversy about the origin of the virus – that was supposed to be escaped from the laboratory and/or deliberately released - became a symbol of the power of the pharmaceutical companies, as well as a product of the irresponsibility of scientists. Towards the end of 2020, the Covid-19 vaccine seemed almost ready for the market, and mass immunisation begun in Italy from December 2020. Both Comilva and Corvelva members disagree about the vaccination policy, and two main reasons are reported:

1) Lack of information about the adverse effects of vaccination

2) Lack of adequate testing

The issue of adverse effects has been addressed by all associations for the free choice of vaccines. Comilva mobilises its community through an invitation to collect witnesses to report experiences about adverse effects to reinforce the epistemic authority of their claims:

> In Italy they continue to minimise side effect of covid vaccines by labelling citizens who report disorders as imaginary patients, suffering from forms of anxiety or psychological disorders. This is not the case, just look at the various scientific publications. We invite you to report any suspected reaction, to demand that doctors do their duty because only then you can get a true picture of the situation. (Comilva 10/10/2021)

Already in March 2021, when the vaccination campaign was extended to citizens who were not part of vulnerable categories, Comilva collected news stories on deaths related to Covid-19 vaccination, inviting its members to report adverse reactions to vaccination through a vademecum available to users. Comilva invited users to report witnesses for the duty of pharmacovigilance, denouncing the absence of a national report:

> The question, therefore, arises: are all these events flowing into the National Pharmacovigilance Network? Today, the Report on the Surveillance of anti-Covid-19 prophylaxis treatments of the II month of administration is not yet available, it is not given to know anything about the active pharmacovigilance studies prepared nor about the work of the newly formed Scientific Committee for the post-marketing surveillance of Covid19 vaccines. (9/3/2021 Comilva)

Comilva also reports the petitions of Association of studies and information on health (Assis), which calls on members to be vigil and report adverse reactions to vaccination because: “Only large numbers of witnesses can guide both the search for safety and health policy decisions!” (Comilva 9/10/21).

Fig.1 Screenshots from Corvelva and Comilva Facebook pages

In parallel reviewing scientific literature took place on Corvelva and Comilva pages on Facebook (see fig.1) with the aim of revealing supposed contradictions and inconsistencies about vaccination effects. In this way they try to support their theses such as fallacy of vaccines as immunization technology and the unreliability of hegemonic health policies. Indeed, Corvelva, in line with Comilva regarding concerns about adverse effects, focuses primarily on the lack of adequate testing regarding vaccination. Corvelva mobilises its own experts to provide useful information regarding Covid-19 against scientific fora. The new MRNA vaccine platforms, according to Corvelva experts, could have long-term effects that are difficult to see in the short term. The threats they reported were as follows: 1) mass immunisation would contribute to the proliferation of variants; 2) Covid-19 vaccines are experimental, and the long-term effects are unknown as well as the benefits; and 3) the latest generation of vaccines could interfere with our genetics. As is well known, technological innovation regarding vaccine platforms often prompted new health fears. As in the case of trivalent and hexavalent vaccines since 2016 with the revamp of Wakefield controversy new fears have arisen as vaccines have been associated with autism (Francia et al. 2019). Several experts close to the association, such as Dr. Bolgan, reported in video interviews or live streaming, their support to such theses. The interventions of Dr. Bolgan aimed to illustrate an alternative perspective on the latest generation of vaccine platforms on the differences between the various vaccines, namely, those with adenovirus versus those with MRNA. Corvelva gave further visibility to such contents by promoting a dedicated e-book[7]. The dissemination of alternative information, the collection of adverse reactions, the call for pharmacovigilance, the contestation of vaccine policies and strategies to overcome the emergency represent bioresistance tactics that occur within the "vision" of institutional science and medicine and necessarily operate upon its epistemological, material and rhetorical terrain (Happe et al. 2018). The use by vaccine-related activists of scientific studies (although now mostly

[7] The ebook is Bolgan L (eds) (2020) Covid-19 The Vaccine that will be. An overview on the experimentation in place, Corvelva ebook, 3 May.

discredited) to challenge the administration of vaccines to young children or the Covid-19 vaccine to mass population are examples that reflect a desire to counteract the political agency enabled and activated by the state and delivered by health institutions' programmes that articulate normative health as a civic responsibility. Thus, the contestation directly involves the constituent fora of public health and scientific research. The next section shows how the M3V performs a different style of bioresistance during the Covid-19 pandemic.

5.2 Claiming self-determination during the pandemic: Movimento 3V

The M3V, with more than 45,000 followers on Facebook, was the first Italian political party born from the movements for freedom of choice for vaccination. Originally a single-issue party, M3V opposed Covid-19 vaccination by arguing mainly on the unconstitutionality of compulsory vaccination. The key principle on which M3V bases its political action "is to focus every political action on the welfare and health of the human being"[8]. Human being is at the centre of M3V's political action: the economy, technology, science must be understood as tools to support the health, the dignity and wellness of the human being, as well as education that must aim to develop the uniqueness of the person in the affirmation of his individual freedom[9]. These aspects converge in a conception of "society on a human scale", in which the subject is the holder of awareness and is "unique and unrepeatable"[10]. In the M3V vision, in fact, Covid-19 is not "only" a virus: it is a new society vision that favoured anti-social political measures aimed at the suppression of individual freedoms. In short, if parts of the vaccine-related movement contests compulsory vaccination by discrediting official scientific knowledge, other elements highlight the legal reasons behind the obligation, especially when this has been extended to almost the entire population: health care personnel, school and university staff and the police were all required to undergo the anti-Covid-19 vaccination. For the M3V, the Covid-19 represents the extension of state power over the bodies of citizens or a biopolitical tool to regulate and legitimate bodies and behaviour:

> We are going through a historical moment in which civil rights are becoming less and less (...) in the name of a health emergency. Workers have been deprived of the possibility to access work, sowing uncertainty, instability and undermining their dignity as human beings, but every form of freedom of the individual, in the name of a presumed protection of the common good, is being eroded. We have immediately recognised the authoritarian drift to which this government proves to want to take us, using the health emergency from "SARS COV-2" as a ruse to justify this situation and that has made its way initially with the laws on compulsory vaccination for children, accompanied by coercive aspects for citizens (...). We carry on the fight against this slavery and fear of living, together, united, for the restoration of legality and our constitution. (M3V, 28/12/2020)

Among the various strategies of resistance, the M3V prefers those of active politics from below: public demonstrations and street protests, thematic campaigns aimed at involving the population. Among the most interesting campaigns we find two: #iononmivaccinoperché (I don't get vaccinated because) and #riprendiamocilavita (let's take our life back). The first campaign "I don't get vaccinated because" (fig.2) uses the meme, a typical features of Web communication. They use meme to convey the 17 reasons why you should

[8] https://www.movimento3v.it/chi-siamo/ (last access 5/5/22).
[9] https://www.movimento3v.it/visione-3v/ (last access 5/5/22).
[10] https://www.movimento3v.it/visione-3v/ (last access 5/5/22).

not get vaccinated, including medical issues, such as the protein spike causing thrombosis and stroke, the impairment of fertility, the refusal to inject foreign DNA into their bodies, the refusal to undergo experimental therapy ("Non sono una cavia" - I am not a guinea pig!, Fig. 1) and pharmaceutical companies not taking responsibility for any adverse reactions.

Fig.2 The campaign #iononmivaccinoperché (I don't get vaccinated because)

Within the initiative "io non mi vaccino perché", there is the campaign "riprendiamoci la vita", in which sit-ins from March 2021 took place in various Italian cities, such as Padua and Ravenna, where members of the party with specific expertise disseminate information about Covid-19 vaccination. Moreover, this dissemination activity was also implemented online, mobilising internal experts. The online platforms involved a new set of rights and responsibilities for health citizens: "these include responsibilities to input data for medical research; to inform and educate on matters that are unknown unless experienced (such as side-effects); to seek and offer reassurance in the absence of easily accessible medical advice; and to feedback in order to correct problems in healthcare organisation and delivery" (Petrakaki et al. 2021, 7). An example is the YouTube video, then removed from the channel for policy violation, entitled "health hallucination", where a biologist addresses the pandemic emergency. In the video, the expert does not speak specifically about vaccines, but always about participation and how to cope with the vaccine policies implemented. In the video, the M3V is qualified as a "reliable" source because its members are qualified as experts of high professional profile, such as doctors, lawyers, biologists, economists, teachers, and psychotherapists:

> Therefore, within (the M3V) we can also have all the answers we need and the strength to bring to light the true justice and fundamentals of science that have been muddied by tendentious information. The policy must be strengthened for its ability to give freedom of choice and science, however, in biomedical fields must again be the responsibility of all. (M3V YouTube Channel, 3/15/21)

With these assumptions, however, towards the threshold of the mandatory Green Pass, the M3V movement aims to organise events throughout Italy, also promoting local initiatives to provide information about vaccination and the green pass. However, the vaccine, the Green Pass and health policies are argued in a peculiar way by the M3V using the metaphor of the colonised body:

> The Green Pass: our body is the last trench! Francesco Neri, candidate for M3V for City Councillor of Rome, present at the demonstration in Piazza del Popolo on Saturday, July 24, incits to defend the last trench - their bodies - and their fundamental rights (M3V, 27/07/21)

The body as the last trench calls into account the rhetoric of defence from an enemy that constituted the biomedical view of health during the Covid-19 pandemic. If people rely on biomedical treatments, such as vaccinations, by accepting the idea that our immune systems ought to defend us against illnesses (Cohen 2009), on the contrary, free vax movements, as in the case of M3V, claim the right of self-defence of the body by "useless" biomedical contamination.

6. Conclusive remarks

The paper developed vaccine-related activism during the Covid-19 pandemic from the perspective of political claims for citizenship. Opposing normative and prescriptive stances about public contestation against Covid-19 vaccination policies was necessary to probe further the knowledge and political claims of the free vax communities involved in the study. The online ethnography of specific free vax groups in Italy enlightened three main strategies of discrediting mainstream knowledge and health policies about the Covid-19 pandemic from below. These strategies are based on three types of claims: knowledge produced by users; knowledge produced by experts within communities; and constitutional rights to guarantee individual health choices. The emerging forms of citizenship observed are based on the reconfiguration of the relationship between the state and citizens considering new epistemologies from below that ask for legitimacy and on the sharing of political values aimed at protecting health outside the collective proposals of biocitizenship. Discrediting vaccination as a health policy has been supported through the collection of witnesses and the contestation of the scientific robustness of vaccination knowledge and by organising public protests. Analysing these strategies allowed us to deeply probe how contestation of the reliability of anti-Covid vaccine is developed through knowledge claims based on alternative epistemologies. Consequently, vaccine-related activism during the Covid-19 pandemic is not only a phenomenon to be interpreted as misinformation; rather, it is related to a different idea of practicing health and related rights and duties. Indeed, groups addressed the contestation of public policy on the constituent forum of scientific robustness. Professional expertise is a focal point for community members. What makes the free vax movements different from the more general phenomenon of disinformation or fake news lies in the fact that they mobilise peculiar sources of knowledge and expertise. As has been demonstrated, they connect experiential knowledge with expert knowledge, use scientific articles to underpin their theses and share what they have learned within the community. The community plays a leading role in disseminating, making accessible and translating expert knowledge both in terms of depurating specialised language and in relation to linguistic differences. Experts in these communities also play a key role in legitimising dissent in relation to public policy on vaccination because of their expertise. Scientific expertise in biomedical fields, in fact, is essential to support the knowledge claims of free vax in relation to both health and political policies. Moreover, the interesting aspect lies in the fact that these experts have "hybrid credentials", that is, they are often part of public institutions such as healthcare companies, academia, politics, or have had a background in one of these institutions or areas. As shown previously, free vax communities may enrol experts such as clinicians, biologists, virologists and physicians. They contribute by providing evidence and guidelines to overcome the epistemic uncertainty that comes with the pandemic. Besides partisan experts, everyday evidence, as in the case of the presumed side effect related to anti-Covid vaccination and as everyday practice, sharing knowledge, health data and experiences to overcome the virus, are part of the mix for an active citizen claim.

As reported, for the free vax communities considered in the study, contesting health policies undertaken by the Italian government during the pandemic emergency (including screening tests and the Green Pass) implied challenging the knowledge on which the health policy (e.g., compulsory vaccination) was based and the political values that legitimate the health policies. In doing so, free vax communities questioned the political reasons under the compulsoriness of mass immunization as well. Resisting mass immunisations, consists of contestation of hegemonic narratives about health policies also relying on biopolitical reasons: safeguarding civil rights means acquiring self-determination through the body and respecifying the boundaries between biomedicine, political action and society. Taken together, they are the building blocks of a constitutive forum of these communities as alternative epistemologies.

Finally, the analysis of vaccine-related movements according to a symmetric perspective allowed us to highlight the emergence of different visions related to the Covid-19 pandemic. The communities provided stability and coherence to their members in a moment of great uncertainty, especially regarding emerging knowledge related to the new vaccination platforms associated with Covid-19 research.

Understanding how the knowledge refused by mainstream scientific communities can find legitimation in other social spaces provides insights into emerging practices of participation in health issues. The pandemic, in fact, has fostered the emergence of new communities that have brought together political and health claims, supporting an unprecedented form of biocitizenship that centralises citizen self-determination regarding health choices. This is the case of R2020 born during pandemic as "an open and inclusive democratic space that brings together all those who struggle to reaffirm their rights of freedom and self-determination" (Bory et al. 2022b, 10)[11]. However, the appeal to individual rights, including the right to challenge official assessments of vaccine safety, could easily become a powerful new strand in this larger political transformation from below (Blume 2006).

Although the pressures for individual typical of biomedicalisation have fostered an individualistic approach to health choices, there is today an increasing collectivisation of health practices from below, where lay knowledge and expertise are shared by restoring the epistemic value of subjective experience. In this view, activists do not simply support their political and knowledge claims, but also, as producers of new scientific communications, provide the public with an alternative understanding of science and technology related to health and biomedicine.

The processes described are occurring anyway and reveal turmoil around health governance: countermeasures for reducing the spread of content (including censorship on social media platforms) have proved to be ineffective since the proliferation of those ideas radicalised among vaccine hesitant communities rather than being eradicated. Such a side effect is not easy to avoid, but a proper public engagement should at least combat such a risk by recognising the legitimacy of claims for knowledge or at least opening up space for an open discussion. Rather than rejecting these notions, health-related policy should favour more aware and informed compliance. As it was fruitful for our analysis, a more symmetrical perspective could be an epistemic resource for addressing sneaking conflicts about health. Vaccine-free choice movements cannot be

[11] Currently, some top spokespersons from R2020 (Sara Cunial), M3V members (Luca Teodori), free vax experts (Luca Montanari) and former members of M5S (Davide Barillari) are running for 2022 Italian parliamentary elections in a coalition called Vita (life). Among the other candidates, the coalition also gathers other refused knowledge communities such as No5g in the person of Maurizio Martucci. Survey conducted on https://dait.interno.gov.it/elezioni/trasparenza/elezioni-politiche-2022 (las accessed 6th September 2022).

identified with other social movements, but at the same time require further research to connect their claims with current broader social and biopolitical changes.

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