

The anti-Green Pass rhetoric in Italy is shaped by anti-vaccine views and focuses on limitations of personal freedom: A social listening analysis on Telegram chats

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Abstract

Background

The recent introduction of COVID-19 certificates in several countries, including the introduction of a European Green Pass, has been met with protests and concerns by a fraction of the population. In Italy, the Green Pass has been used as a nudging measure to incentivize vaccinations, since unvaccinated people are not allowed to enter restaurants and bars, museums, or stadiums.

Objective

This study aims to understand and describe the concerns of anti-green pass individuals in Italy, the main arguments of discussion, and their characterization.

Methods

We collected data from Telegram chats and analysed with a mixed-methods approach the arguments and the concerns that were raised by the users.

Results

Most individuals opposing the green pass share anti-vaccine views, but that doubts and concerns about vaccines are not often among the arguments raised to oppose the green pass. Instead, the discussion revolves around legal aspects and the definition of personal freedom. Further, we explain the nature of the dichotomy and similarity between anti-vaccine and anti-green pass discourse, and we discuss the ethical ramifications of our research, focusing on the use of Telegram chats as social listening tool for public health.

Conclusion

A large fraction of anti-green pass individuals share anti-vaccine views. We suggest public health and political institutions to provide a legal explanation and a context for the use of the green pass, as well as to continue focusing on vaccine communication to inform hesitant individuals. Further work is needed to define a consensual ethical framework for social listening for public health.

Keywords

Green pass, COVID-19, vaccine, freedom, social listening, bioethics, telegram

Introduction

Background

Since the beginning of large-scale vaccination campaigns against COVID-19, many countries had to deal with the issue of vaccine hesitancy (1). Already defined by the WHO in 2019 as one of the major threats to global health (2), vaccine hesitancy has become even more relevant in the context of the current pandemic (3). In Israel, the first country able to ensure sufficient supplies of the Pfizer – BioNtech vaccine, the Ministry of Health swiftly started a vaccination campaign in late 2020. However, after covering health care staff, elderly and vulnerable patients, the campaign reached a stagnation phase, due to a relevant percentage of individuals not willing to get vaccinated. After considering other forms of incentives (4), the Israeli Ministry of health developed a new ad hoc strategy to increase vaccination rate. According to this plan, vaccinated people would receive a special document which allows them access to social and cultural events, national and international mobility, and exemption from quarantine. The declared aim of this document, or “green passport”, was to encourage citizens to receive COVID-19 vaccinations while allowing some reopening of the economy (5). The proposal for the Israeli green passport was passed on the 14th of December 2020 (4); on the 27th of January 2021, the eHealth network of the European Commission started to develop a set of guidelines in order to implement a “COVID-19 green pass” system in Europe. On the 1st of June 2021 the EU Gateway, i.e. the backbone interconnecting national green pass systems in the European Union, went live (6).

When compared with other nudging strategies to tackle vaccine hesitancy, the green pass looks like a promising concept, as it gives incentives to people to get vaccinated without imposing a decision; however, already in its first implementation in Israel, it generated some debate as it can be considered as a tool for discrimination based on someone’s vaccination status. Another argument often used by green pass critics regards privacy: when showing their green pass, people are de facto obliged to disclose health information – thus sensitive information – to third parties (5).

The adoption of the green pass strategy in Europe caused the very same debate and the very same arguments already seen in Israel. But debates need a stage to happen, and in a time of physical distancing due to containment measures, many of these discussions have been taking place online, on social media and communication platforms. As popular social media platforms increasingly corrected their policies to decrease the flow of misinformation (7,8), people and organizations holding critical views about the green pass started to deplatform towards alternative social media channels, a phenomenon already seen and studied, mostly regarding the far-right and conservative world (9). Notably, one of the most prominent destinations for deplatformed individuals and organizations has been Telegram.

Over the last years, Telegram has become one of the most prominent instant messaging services. This success is due to a combination of two factors: on the one hand, end-to-end encryption (10) and an infrastructure distributed over several jurisdictions (11) makes it rather difficult to extract data from the system (12). As stated on the official Telegram's FAQ, to this day Telegram has "disclosed 0 bytes of user data to third parties, including governments" (11). On the other hand, Telegram's services go way beyond conventional instant messaging services: Telegram groups allow a maximum of 200.000 members and include advanced features like unified history, instant search, replies, permissions and moderation tools, making them outstanding tools for many-to-many discussions. In parallel, Telegram broadcast channels allow an unlimited number of followers, making them an appealing alternative to Twitter for one-to-many communication (11,13). This combination of publicity, mobilization capabilities, and privacy provides a solution to the so-called "terrorists' dilemma", i.e. the balancing security and outreach in choosing an online communication platform (14).

The use of Telegram among no-green-pass groups in Italy started to grow rapidly already in July 2021: as soon as the green pass was introduced, groups and individuals offering forged green passes for purchase started to exist (15), as well as groups organizing protests and rallies against the green pass (16).

Aims

This study has a double aim: 1) to study the discourse revolving around the opposition to the green pass and its use in Telegram chats by no-green-pass groups in Italy, with a focus on groups used by university students; 2) to detail a novel approach to online social listening using a combination of quantitative and qualitative approaches, and to question its ethical aspects.

Methods

Ethical and legal considerations

As this study does not fall under the scope of the Swiss Human Research Act (17), an authorization from the Cantonal Ethics Committee is not required. The messages analysed in this study have been retrieved from public chats using the "download history" function of Telegram Desktop. This qualifies the data as "publicly available". According to the GDPR (18), art. 6.1, data processing without explicit consent of data subjects is possible when protecting the interest of the data subject and when "necessary for the performance of a task carried out in the public interest". Research falls in the category of public interest, but this criterion being very broad, it is important to weigh the public interest and benefits to the risk for the individuals, especially because the dataset might contain special categories of personal data (i.e. health, politics or world-view-related data). Generally, information detailed in art. 14 of the GDPR should be provided to the data subjects individually, although this could be considered as a disproportionate effort, given the number of users involved in this study. On the other hand, one could argue that the necessary information could be provided in a general way through posting into those chats. Since either way this transparency might result in both a higher risk of re-identification and a serious impairment to the pursue of research, it could be argued that is against the public interest and should therefore be omitted. Art. 14.5 and 89 of the GDPR exempt from the provision of information to study participants where and insofar it would involve a

disproportionate effort or render impossible or seriously impair the achievement of the objectives (i.e. the research goals in the public interest). As specified in art. 14.5.b, we took appropriate measures to protect the privacy of data subjects whose messages are included in our study: the JSON files retrieved from Telegram have been completely anonymized (removal of personal names and toponyms from the message text) and pseudonymized (replacement of the user ID with a pseudonym); the original dataset has been destroyed; the analysis has been conducted on the anonymized version; the anonymized dataset will be available upon request; as the search of segments of text in the original chat would allow re-identification, the links to the chats will not be disclosed.

Data collection

Data were collected from two groups of chats. The first comprises no-green-pass groups of Italian universities (one in the north, one in the center, and one in the south) and generic no-green pass groups. The second, our negative control, comprises groups dedicated to the discussion of video games, parrot breeding, and other general topics. These chats were randomly selected among the Italian Telegram chat landscape, with the condition that the discussion would still be active and that at least 200 users joined the chat.

We identified relevant chats and downloaded the message history as a JSON file. We downloaded the JSON files containing the entire history of said groups on the 9th of September 2021. The data collection is described in Multimedia appendix 1.

Multimedia appendix 1

<i>Category</i>	<i>Group description</i>	<i>n of users</i>	<i>n of messages</i>
<i>no green pass</i>	university, north	1770	7356
	university, center	5168	10464
	university, south	479	1879
	generic	12295	33707
	<i>Total</i>	<i>19712</i>	<i>53406</i>
<i>control</i>	parrots	296	48494
	videogames	750	43322
	generic	294	10588
	generic	210	1453
	generic	218	21611
	<i>Total</i>	<i>1768</i>	<i>125468</i>

Multimedia appendix 1. Data collection: composition of the groups, users, number of messages. The table lists the category to which the groups belong (no green pass or control); the description of the group, the number of users and the number of messages in the group.

Data were downloaded directly using the function “export chat history” of Telegram’s official desktop client. For this study, we downloaded only textual data. We parsed the JSON files into Pandas data frames. To protect the privacy of the users while still maintaining the possibility to track conversations in qualitative analysis, we combined anonymization and pseudonymization. Anonymization was performed by removing metadata from messages, by removing personal names and replacing them with [name] (19). Similarly, every toponym was replaced with [place] (20). Direct mentions of users in the text (e.g: @thisuser) were searched and replaced with [username]. Surnames were not removed from messages. Being the chat an informal context, people do not refer to other members of the chat or to themselves using surnames. However, surnames are often used to refer to public figures or sources of information, and thus represent a valuable component for the analysis.

Analysis

For this project we used a mixed methods approach, which involves the use of qualitative and quantitative data. For the quantitative analysis, with a top-down approach we defined a series of dictionaries relevant for the purpose of this study, each one containing regular expressions that belong to the same concept. Regex allows the definition of fairly complex rules, able to reduce ambiguity and capture precise concepts. As an example: the rule `(tesser.\sverd.?|pass\sverd.?|certifica\w*\sverd.?)` will fire on "tessera verde" (green pass) or "tessere verdi" (green passes) or "pass verde" (green pass) or "certificato verde" (green certificate), but not on "casa verde" (green house) or "verderame" (verdigris) or "tessera del cinema" (cinema card). The autocoding has a weight system: if only one rule from the dictionary fires, the autocode is assigned a weight of 1, if 2 rules fire, the weight will be 2 and so on. Autocodes can then be used to measure the prevalence of topics through the corpus, to segment the quantitative analyses, or as a starting point for the qualitative work. Third, we extracted the lemmas used in the corpus using the python package "Spacy" and its pre-trained model for Italian (21). This is performed on a large bag of words including every message in the corpus and by dividing messages by code. In the final step of the quantitative analysis we performed a sentiment analysis (22), both on the entire corpus and on messages divided by code. The sentiment analysis was performed using the python package "feel-it" (23), through which we calculated the probability of positive or negative sentiment for each message. We developed the analysis pipeline in Python; the code is structured in a Jupyter Lab notebook, available through Zenodo (24).

For the qualitative analysis we generated a structured text file, annotated with pseudonymized speakers and codes resulting from the autocoding system. The file was then imported in MaxQDA for thematic analysis. The development of the regular expressions used for autocoding has been an iterative process. We ran the code several times, exploring the results, noting the gaps, and fine tuning the regular expressions. The thematic analysis has been conducted by native Italian speakers on messages written in Italian; the text has been translated by the authors to be comprehensible to a wider audience, but still as close as possible to the original. The original quotes in Italian are provided as supplementary material (multimedia appendix 5).

Results

Quantitative results

Lemmas, terms and rules: the no-green pass discourse encompasses legal aspects, actions and vaccine scepticism

To understand the interests of individuals critical of the green pass, their arguments and the opinions that shape their position in the debate, we quantified and analysed the most frequently used lemmas in control chats (**Table S2**) – with individuals not focusing their discussion on issues related to green pass, vaccines or COVID-19 – and in chats focused on green pass opposition (**Table S3**). As a positive control, we checked whether the lemmas "green" and "pass" were found to be among the most frequently used in green pass opposition chats when compared with control chats. As expected, "green" was the second most frequently used lemma in green pass opposition chats, and "pass" was the fourth most frequently used lemma (frequencies 9.2% and 7.5%, respectively). Instead, these lemmas were barely used in control chats (frequency of 0.02% for both lemmas). As expected, the average frequency of the two lemmas combined ("green" + "pass") was significantly higher in green pass opposition chats in comparison with control chats (**Fig. 1A**). Among the 20 most used lemmas in either control or green pass opposition chats, we identified two relevant categories of terms: legal terms and action terms. Legal terms included law (*legge*) and article (*articolo*). These terms were highly overrepresented in green pass opposition chats when compared with control chats (**Fig. 1B**). Action lemmas included can (*potere*), must (*dovere*), want (*volere*), know (*sapere*), ask (*chiedere*), do (*fare*), say (*dire*), speak (*parlare*), take (*prendere*), put (*mettere*), use (*utilizzare*), come

and go (*andare* and *venire*), write (*scrivere*). Among these, we identified three lemmas to be relevant and underrepresented in green pass opposition chats: Take (*prendere*), put (*mettere*) and use (*utilizzare*). Overrepresented lemmas were can (*potere*), ask (*chiedere*) and speak (*parlare*) (**Fig. 1C**). Besides these lemmas, we were interested in understanding which rules were the most relevant in control chats, and, in addition to the rule “green pass”, we focused on the rules “COVID-19”, and “vaccine” and “freedom”. With this analysis we wanted to understand whether the legal lemmas that were overrepresented in green pass opposition chats were linked to a pronounced discussion about personal freedom, in connection with the discussion about the green pass and/or COVID-19 vaccines. All the above-mentioned rules were represented with a higher frequency in green pass opposition chats when compared with control chats, and these differences were statistically significant (**Fig. 2**). As expected, the rule for “green pass” fired very frequently in green pass opposition chats, and more frequently than the rules “COVID-19” and “Freedom”. Surprisingly however, the rule “vaccine” was the most frequently used in green pass opposition chats, more so than the rule “Green Pass”, indicating that among green pass critics, even when the discussion revolves around legal aspects connected to personal freedom, scepticism towards vaccines likely remains as the predominant reason to oppose the green pass.

“No green pass” individuals have a negative sentiment towards green pass and vaccines

After having identified the predominant themes associated with anti-green pass discourse, we analysed whether such discourse is associated with a higher probability of negative sentiment. By defining the likelihood of negative sentiment for each message, we averaged the sentiment for each chat and finally across chats within the same category. As expected, the average likelihood of negative sentiment was significantly higher in green pass opposition chats when compared with control chats, with a probability of 0.70 and 0.55, respectively (**Fig. 3A**). In addition, we calculated the average probability of negative sentiment associated with the rules “COVID-19”, “Freedom”, “Green Pass”, “Vaccine”, and determined that for all these rules, messages depicting negativity were overrepresented in green pass opposition chats when compared with control chats (**Fig. 3B**). This effect was significant for the rule “Green Pass”, which can serve as a positive control indicating that green pass critics are, in fact, assessing the issue with negative sentiment, when compared with people that do not necessarily oppose its introduction and use. Of particular interest, messages related to the rule vaccine had a 96.26% probability to depict negative sentiment, a particularly high probability also when compared with negativity for COVID-19, Freedom and Green Pass in green pass opposition chats (90%, 88% and 85%, respectively), thus providing strength to the hypothesis that vaccine scepticism is the primary reason to oppose the green pass.

Rules and lemma frequency: the interplay between vaccines and green pass

To further understand the relationship between the topics “Green pass”, “Vaccine”, “Freedom” and “COVID-19”, we analysed the most frequency used lemmas when the discussion is about one of such topics (as determined using the associated rules). For the rule “COVID-19”, the lemmas “green”, “pass” and “vaccine” were among the most used (**Fig. S1A**). For the rule “Freedom”, as expected, lemmas associated to legal terms were overrepresented, as well as “green” and “pass” (**Fig. S1B**). For the term “Green Pass”, we could not identify “vaccine” among the most relevant and used lemmas, although we identified lemmas associated to legal terms including “freedom”, “law”, “article”, “can” and “must” (**Fig. S1C**). Instead, for the rule “vaccine”, we could identify “green” and “pass” among the most relevant and significant lemmas (**Fig. S1D**). As our previous results indicate, despite our analysis is focused on green pass opposition chats, vaccines constitute a widely discussed topic, which even dominates the discussion about the green pass. In line with our previous observations, here we show that green pass discussion takes place when vaccines are being discussed, but not *vice versa*. This might suggest that green pass critics tend to share anti-vaccine views, but do not wish for their argumentations against the green pass to be revolved around their anti-vaccine views. Rather, they prefer to support their position discussing limitations to personal freedom and advancing legal considerations.

Figure 1

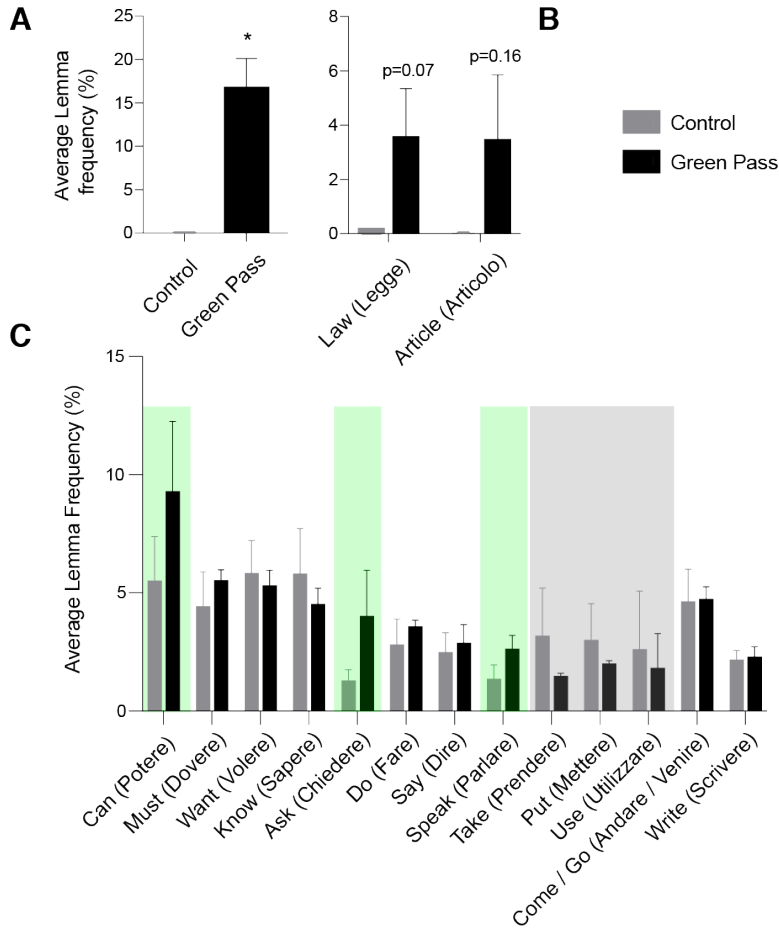


Figure 1. Average lemma frequency (in percentage) in control vs green pass opposition chats. Average lemma frequency (in percentage) for “Green Pass” in control (grey bar) vs green pass opposition chats (black bar) (A). Average lemma frequency (in percentage) for legal terms in control chats (grey bars) when compared with green pass opposition chats (black bars), extracted from the 20 most used words in the green pass opposition chats (B). Average lemma frequency (in percentage) for action terms in control (grey bars) versus green pass opposition chats (black bars), extracted from the 20 most used words in both control and green pass opposition chats. The green background highlights the most relevant action terms that are overrepresented in the green pass opposition chats, whereas the grey background highlights the most relevant action terms that are overrepresented in control chats (C). * $p < 0.05$, t-test. Error bars represent SEM.

Multimedia appendix 2

Number	Lemma, symbol or expression	Frequency (%)
1	😄	18.1
2	Know (sapere)	5.9
3	Want (volere)	5.5
4	Can (potere)	4.7
5	👊	4.3
6	Must (dovere)	4.1
7	Ok	3.4
8	Take (prendere)	3.4
9	Hello (ciao)	3.2
10	See (vedere)	3.1
11	Put (mettere)	3.1
12	Do (fare)	2.6
13	Say (dire)	2.6

The anti-Green Pass rhetoric in Italy is shaped by anti-vaccine views and focuses on limitations of personal freedom: A social listening analysis on Telegram chats – v7 20102021 [PREPRINT]

14	Ah	2.5
15	☹️	2.5
16	2	2.5
17	Parrot (pappagallo)	2.4
18	❤️	2.4
19	Cage (gabbia)	2.4
20	Go (andare)	2.3

Multimedia appendix 2. The 20 most used lemmas, symbols, or expressions in control chats. The table lists the most frequently used lemmas), symbols or expressions (in percentage) on average across each individual control chat (n=5).

Multimedia appendix 3

Number	Lemma, symbol or expression	Frequency (%)
1	Can (potere)	9.3
2	Green	9.2
3	Link	8.6
4	Pass	7.5
5	Must (dovere)	5.5
6	Want (volere)	5.3
7	Know (sapere)	4.5
8	Freedom (libertà)	4.1
9	Ask (chiedere)	4.0
10	Vaccine (vaccino)	3.8
11	Message (messaggio)	3.8
12	Do (fare)	3.5
13	Law (legge)	3.5
14	Article (articolo)	3.4
15	Hashtag	3.1
16	Shop owner (esercente)	2.8
17	Say (dire)	2.8
18	Speak (parlare)	2.6
19	Square (piazza)	2.5
20	Come (venire)	2.5

Multimedia appendix 3. The 20 most used lemmas, symbols or expressions in green pass opposition chats. The table lists the most frequently used lemmas), symbols or expressions (in percentage) on average across each individual green opposition chat (n=5).

Figure 2

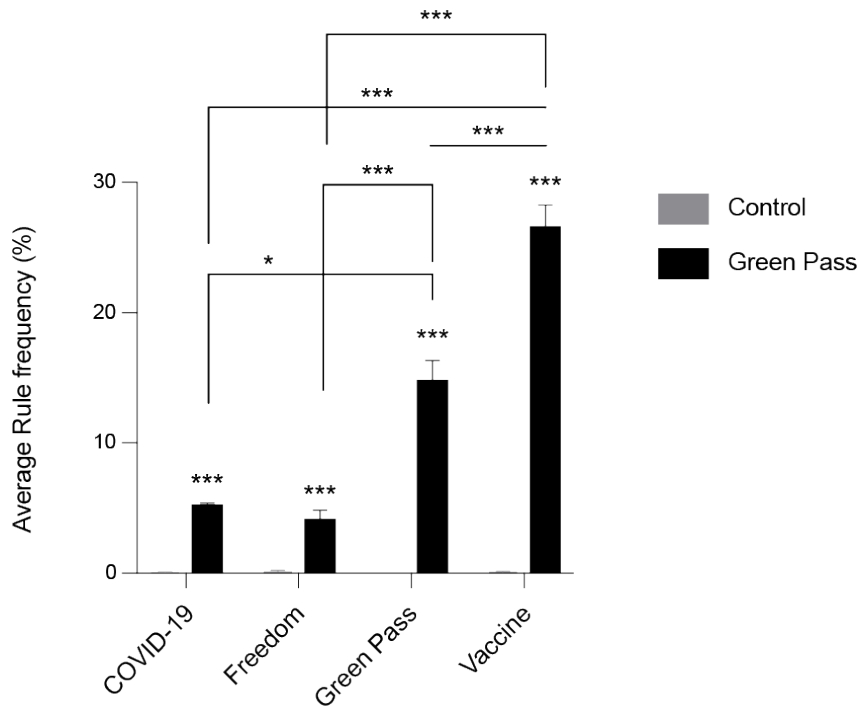


Figure 2. Average rule frequency (in percentage) in control versus green pass opposition chats. Average rule frequency for terms grouped under the rules “COVID-19”, “Freedom”, “Green Pass” and “Vaccine” in control (grey bars) vs green pass opposition chats (black bars). * $p<0.05$; *** $p<0.001$, t-test. Error bars represent SEM.

Figure 3

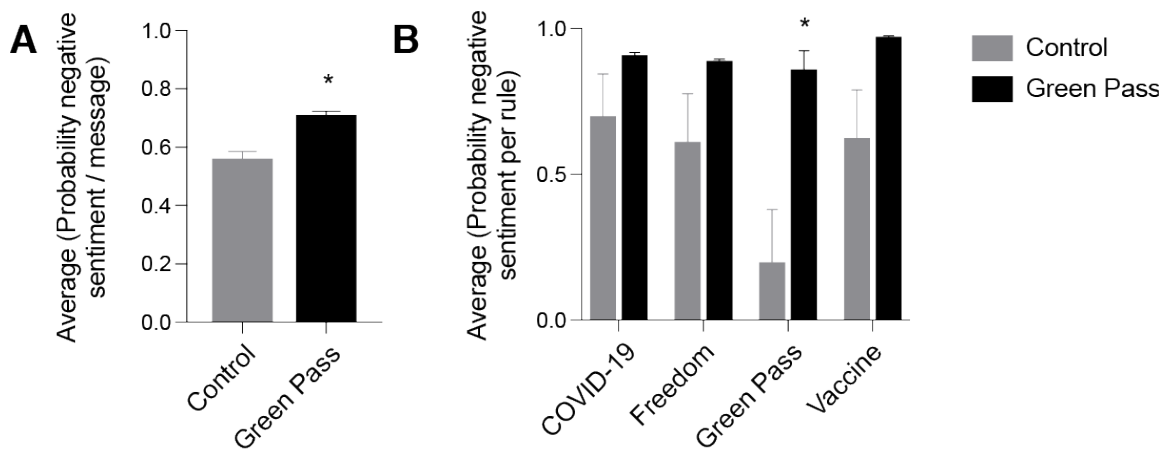
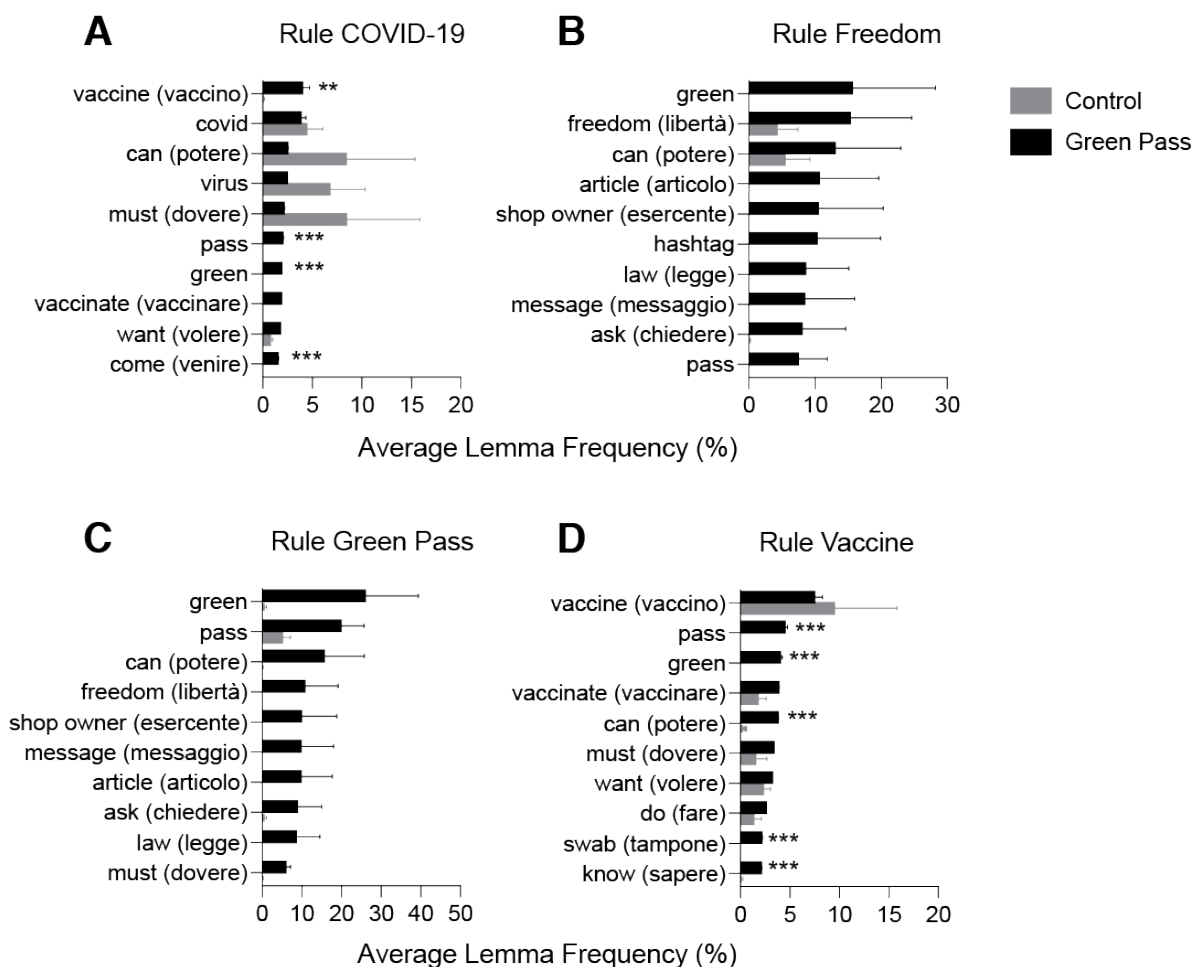


Figure 3. Sentiment analysis in control versus green pass opposition chats. Average probability of negative sentiment in messages published in control (grey bar) versus green pass opposition (black bar) chats. (A). Average probability of negative sentiment per rule in control (grey bars) versus green pass opposition chats (black bars). The following rules are taken into consideration: “COVID-19”, “Freedom”, “Green Pass” and “Vaccine” (B). 0 indicates the maximum likelihood for an average message to display positive sentiment, whereas 1 indicates the maximum likelihood for an average message to display negative sentiment. * $p<0.05$, t-test. Error bars represent SEM.

Multimedia appendix 4



Multimedia appendix 4. Average lemma frequency (in percentage) per rule in control versus green pass opposition chats. Average lemma frequency in percentage for the 10 most frequent lemmas in green pass opposition chats (black bars), compared with their relative frequency in control chats (grey bars), extracted from messages scoring a positive value for at least one of the rules: COVID-19 (A), Freedom (B), Green Pass (C) and Vaccine (D). ** $p < 0.01$; *** $p < 0.001$, t-test. Bars represent SEM.

Qualitative results

Green pass and vaccines

The qualitative analysis supports the findings described in our quantitative analysis: Although our analysis is focused on chats discussing the green pass, users often start debating about related topics, including the risk-benefit profile of COVID-19 vaccines, their efficacy and their use. Of note, moderators often ask participants to stay on topic and avoid discussing these parallel issues. There are two main reasons: one is to avoid conflict, as a (small) fraction of individuals who position themselves as anti-green pass are pro-vaccinations; the other is to avoid floods of misinformation which could discredit what the moderators perceive as a much-needed debate:

On the other hand, it is a big mistake to take a stance on vaccines. Those who want to do so should do so. The point is only to be against this limitation of freedom and many vaccinated people are against the green pass. Do not introduce divisive or extremist elements that vote the initiative down (university, south, Pos. 742)

The anti-Green Pass rhetoric in Italy is shaped by anti-vaccine views and focuses on limitations of personal freedom: A social listening analysis on Telegram chats – v7 20102021 [PREPRINT]

Users themselves are very aware of how hard it is to discuss about the green pass without discussing about the reasons for which it is needed:

*how can one ignore the vaccine issue if it is literally the main option for getting a pass??
(university, north, Pos. 6693)*

As stated above and as noted in the quantitative analysis, these no-green pass chats have de facto been a proxy to discuss vaccines. Users know the green pass was introduced as a nudging measure to avoid mandatory vaccination. Nevertheless, they do not perceive this strategy in a positive way. Even if there are other ways to receive a valid green pass (i.e recovery from COVID-19 or testing), vaccination is the most obvious and less burdensome one. Users perceive this as a cunning imposition which possibly makes them even angrier than mandated vaccines:

*I am against the green pass because I see it as a coercive and hypocritical tool put in place by the government because if they saw the vaccine as a safe way, they should have the consistency to make it compulsory and instead they don't bother to do so
(university, south, Pos. 1807)*

the green pass is a way of circumventing compulsory vaccination. The green pass is an "incentive", said to be very soft, but in fact it is a compulsory requirement. (university, center, Pos. 14716 – 14718)

Even though, as discussed above, moderators would prefer to disentangle the discussion about green pass from the topic of vaccinations, pointing out that even someone who is vaccinated could hold no-green pass positions, most of the users share common critical beliefs about vaccines:

It is becoming increasingly clear from the scientific literature that 1) There are very effective treatments for Covid that indicate that vaccines are not at all essential. 2) Vaccines often have serious short-, medium- and long-term side effects, there is a well-founded fear that they could induce serious pathologies (tumours, autoimmune and degenerative diseases, sterility...) and they are still at the experimental stage. 3) Vaccines facilitate the development of variants, many of which are particularly virulent, and should not be carried out during epidemics, let alone pandemics. 4) Vaccines do not absolutely protect against Covid as they are said to do, i.e. those vaccinated may become infected and may in turn infect others... so they should not have a Green pass unless they too are swabbed... (university, center, Pos. 3572 – 3579)

Users are especially afraid of possible side effects. This narrative proposes that the vaccine is worse than the disease it is meant to prevent:

who can guarantee that I will not have serious effects as a result of the vaccine, that could harm my future? Who will compensate me for any damage? (university, north, Pos. 25293 – 25294)

Statistics show that the number of deaths due to Covid is the same as the number of deaths due to the vaccine, only that the number of deaths due to Covid is much overestimated (the number also includes deaths due to other causes but catalogued as Covid because they are positive to the test), while deaths due to the vaccine (not to mention cases of serious adverse effects) are much underestimated because only passive surveillance is done, and poorly. (university, center, Pos. 15682 – 15688)

Moreover, according to several users, there is no evidence that vaccines work: they do not prevent the spread of the disease, and are less effective and more burdensome than alternative therapies to reduce the

The anti-Green Pass rhetoric in Italy is shaped by anti-vaccine views and focuses on limitations of personal freedom: A social listening analysis on Telegram chats – v7 20102021 [PREPRINT]

symptoms and avoid ending up in intensive care (the most quoted are hydroxychloroquine, cortisone, heparin, ivermectin, nonsteroidal anti-inflammatory drug, and hyperimmune plasma transfusions):

We must rebel, this vaccine is a gene therapy with no guarantee that it will work. Vaccinated people are just as infectious as unvaccinated people, it is clear that this vaccine does not protect against COVID. (university, north, Pos. 2612)

It is written in all official documents of the pharmaceutical companies and the WHO that there is no evidence that vaccination will stop the spread of the virus. (university, north, Pos. 3385)

Finally, some users suggest that vaccines could be part of a bigger scheme, again orchestrated by governments and covert powers, possibly aiming to reduce the world's population.

Overpopulation, they have been saying this for years, and the Vax in my opinion serves to solve that problem, not covid ... (university, south, Pos. 2343)

Their aim is to manipulate human beings by injecting them with a serum containing graphene, which can react with certain frequencies and modify the behaviour of cells. By changing the behaviour of cells, you can change the behaviour of human beings. (generic, Pos. 72471)

Beyond vaccines: Green pass, legal aspects and personal freedom

Despite vaccines being the predominant topic in these chats, the majority of individuals do not make use of arguments related to vaccines, including conspiracy theories about vaccines, to justify their opposition to the green pass. Rather, they claim the green pass is an illegal measure and it is discriminatory:

IT IS CLEAR THAT THE GREEN PASS IS AN INSTRUMENT OF POLITICAL DISCRIMINATION THAT HAS NO RELATION TO THE ACTUAL HEALTH STATUS... (university, center, Pos. 3572 – 3579)

The green pass is clearly unconstitutional and discriminatory in nature and is a purely political instrument as it has no scientific basis; the report linked before is very clear about it, then they do not make it mandatory by law otherwise they would be obliged to compensate those who died of the vaccine. (university, center, Pos. 7520 – 7522)

In some circumstances, users allude to conspiracy theories according to which the green pass is an element of a bigger plan put in place either by governments or by covert powers to achieve other ends, usually the institution of a totalitarian regime:

Do you still have to realize that even if the Regime decides to withdraw the COVID PASS, to let you go back to work, you have already become citizens of a totalitarian Regime? Citizens of a lousy Regime based on lies, on the progressive elimination of freedoms, on the violent suppression of dissent? (generic, Pos. 2127)

Many users believe the green pass is a serious limitation of personal freedom. This argument is developed following three main threads, in order of importance: normative, consequentialist, and principialist. On the normative side, users appeal mostly to the Italian constitution (art. 13 and 120), to law 196/2003 (personal data protection code), and to the Oviedo convention:

the "green pass" cannot be checked because it is discriminatory, prejudicial to privacy and violates the following articles of law: - Art. 187 of the TULPS Regulation: a commercial operator is obliged to welcome in his business any person, without

The anti-Green Pass rhetoric in Italy is shaped by anti-vaccine views and focuses on limitations of personal freedom: A social listening analysis on Telegram chats – v7 20102021 [PREPRINT]

discrimination, under penalty of a fine up to €3000,00.- Privacy Law: no one can force us to provide information about our health conditions.- Art. 120 Italian Constitution: no one can limit the freedom of movement of the individual in the territory of the Italian republic. - Art. 13 Italian Constitution: no one may restrict personal freedom without a provision of the Judicial Authority on facts concerning the individual. (generic, Pos. 3448)

Add that we will respect all the anti covid security measures (social distancing, hygiene, mask). With regard to the reference to laws and treaties, don't we want to mention the convention on human rights, the Oviedo treaty and the Supreme Court ruling stating that the health of the individual cannot be sacrificed for the sake of collective health? don't we want to mention the principle of self-determination? (university, center, Pos. 395 – 397)

On the consequentialist side, users fear that the green pass will lead to a system of capillary social control, repression of dissent and loss of critical thinking capabilities.

Look at the Chinese social score system to understand the crazy direction of these actions, typical of dictatorial systems and not of advanced democracies. (university, south, Pos. 3755)

By now I think these people are lobotomized and probably don't even know the word FREEDOM (university, south, Pos. 1255)

A minority of users tries to build a principlist argument, balancing the concepts of freedom and life. Their conclusion is that life and freedom are equally important principles, hence it's unjust to protect life limiting freedom.

If the answer to the question is that life is more important than liberty, then all the liberticidal laws made so far are justifiable and I would say almost fair, I can also understand why the green pass, a blatantly discriminatory law, is considered fair by many.

If the answer to the question is freedom, it is clear that everything that has been done so far is considered a mistake regardless of whether a particular law was made to save lives.

We come to the last answer, the most balanced one for me at least, that life and freedom are of equal importance. In view of this answer, it is clear that taking precautions to limit contagion and death is right and proper, so limitations will be inevitable (such as social distancing, masks indoors, limiting seating etc.), but at the same time it is important to preserve the freedoms of all citizens. (university, center, Pos. 14996 – 15012)

The three arguments converge on a single conclusion: the green pass and the system of control it creates are either seen as tools in the hands of dictators or as preparatory tools to gather power.

What kind of disgusting nightmare do we want to bequeath to our children? A Health Regime? A Regime that brutalises the minds and bodies of its citizens on a daily basis? Enough! Rebel! (generic, Pos. 2127)

We are living in a health dictatorship and political authoritarianism that must be opposed. I wonder if a general acting as a commissioner who comes out with absurd words about wanting to flush out the 'unvaccinated' house by house? These people must

leave the government. We must demand to go to the polls again. (university, center, Pos. 5904 – 5906)

Action plan

Leveraging on this understanding of freedom, users perceive a clear duty to react. The first and foremost action is understanding who the real enemy is, i.e. not the virus, nor the people who get vaccinated or 'obey to the regime'. The real enemies are the political system and the political representatives who allowed this to happen:

It is a political issue everywhere. If we understand this we know who we have to fight, and for sure it's not a virus. (university, north, Pos. 20112)

In the university groups, users discuss a lot about communication strategies that would allow them to be credible, also because they are aware that their groups might be studied. The most important points regard avoiding 'defusing topics' (i.e. conspiracy theories) and focusing on self-determination. Again, coherently with our quantitative findings, the main issue appears to be the vaccine, for which the green pass is just a proxy.

we have been able to ascertain the intense doxing activity also of telegram groups. In short, now that membership is growing, we need a minimum of 'art of war' (or rather strategy, just to avoid accusations of terrorism) (university, north, Pos. 20233)

no disquisitions that go beyond the topic to be defended, such as the existence or non-existence of the virus, the no-pro vax diatribe, the Davis forum, depopulation, mass experimentation, variants, damage, etc. These are all topics on which one has burnt the candle at the stake. These are all topics on which the authoritativeness of many prominent figures has been burned, since they easily fall under the so to speak 'defusing' labels (conspiracist, degree obtained on Google, no Mask, no vax, no test, denialist). (university, north, Pos. 3607)

Lastly, many users consider protests as valid strategic options to make their voices heard. The options they consider range from flash mobs to general strikes, to occupations of the parliament.

Shall we make a flash mob where all the unvaccinated all go in at the same time where they can't? Maybe running so that we are sweaty (so they are afraid to touch us) maybe with a hat that says "the Jew rebels" (generic, Pos. 1007)

You will sign in front of the incredulous eyes of your employer your declaration of non-violent struggle. Your declaration of an all-out general strike. Full stop. Nothing else is needed. There will be 100,000 of us, and we will block Italy, offices, services, production. We will pull the plug of this infamous regime. (generic, Pos. 2127)

Summary: explaining green pass opposition without involving vaccines

Among those opposing the introduction of the green pass, especially among university students, only few are in favor of vaccinations, and those in favor of freedom of choice are typically hesitant about vaccines. Being aware anti-vaccine discourse has been typically dismissed by a large fraction of Italian society and by the political class as conspiratory in nature and not worth considering, anti-green pass, often anti-vaccine supporters have oriented themselves towards different argumentations to defend their positions, revolving around legal aspects related to the concept of personal freedom. Our considerations are well summarized by this message:

The anti-Green Pass rhetoric in Italy is shaped by anti-vaccine views and focuses on limitations of personal freedom: A social listening analysis on Telegram chats – v7 20102021 [PREPRINT]

The main argument must continue to be that one must be able to refuse an injection, whatever it may be. The body is mine and I decide. And if you were to be convinced that the serum prevents x% of the infection (as some try to suggest), would our whole battle fall apart? I certainly hope it's not the case. (university, north, Pos. 24367)

The battle is fought on different grounds than vaccines, but vaccines are what this battle is for.

Other aspects: COVID-19

In the no-green-pass corpus are two main positions about COVID-19 emerge. According to the first, COVID-19 exists but is much less dangerous than what it's communicated by "mainstream media":

In addition, in response to the pathetic provocation, I would like to point out that 99% of COVID deaths are of over-80s with multiple pathologies. (university, center, Pos. 2199 – 2202)

COVID exists but you can't stop the world because of it. It's a fucking flu, especially for young people. Many more people have died of the flu and it has never been talked about. (university, north, Pos. 2864)

According to the second dominant position, COVID-19 does not exist and is yet another element of a bigger plan conceived to limit personal freedoms and eradicate free thinking through fear:

Do you realise that you're talking about a virus that nobody anywhere in the world can prove exists? (university, north, Pos. 1328)

The virus has never been isolated or purified. (university, north, Pos. 6509)

At the junction of these two narratives, COVID-19 would be a strategy to pursue other means:

THE VIRUS IS JUST A MEANS TO ACHIEVE OTHER GOALS THAT HAVE NOTHING TO DO WITH HEALTH PROTECTION (university, center, Pos. 8092 – 8095)

Other aspects: Expertise

If COVID-19 does not exist or is not particularly dangerous, then the need for measures such as the green pass would be unfounded. These beliefs are supported by a wide network of "experts", that according to users are brave free thinkers who are not afraid of speaking their mind and standing against these covert powers:

In addition, the most important doctor we have in Italy, Dr Remuzzi with H index 189, has long since drawn up an approved treatment protocol. Go to the website of the [name] Negri Institute and find out more. Dr. Scoglio, candidate for the 2018 Nobel Prize, should also be considered. (university, center, Pos. 14640 – 14643)

covid can be treated at home, with medication. There is a group of volunteer doctors who do just that. "Terapie domiciliari COVID", a very popular facebook group. (university, south, Pos. 1974)

Listen also to Dr Citro, Dr [name] Montanari, Dr Bolgan, to what they say. [Authorities] forced people to get vaccinated with fear, and blackmailed young people with the green pass. There are many adverse reactions and they don't tell you that, so resist for your own good. (university, center, Pos. 4198 – 4200)

The mask does not protect against viruses. Instead, it creates colonies of bacteria that you breathe in, as well as other filth that I won't tell you about, not to look like a

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conspiracy theorist. My colleague's comments on Dr Gatti are right. A great nanopathologist. (university, north, Pos. 742)

According to Dr Delgado, it is not a virus that causes the disease. I will explain this when we meet. (university, north, Pos. 3485)

Other aspects: Preferred measures

Among those who believe that COVID-19 is actually an issue to be contained, some try to delineate alternatives to the green pass. These include the use of masks, social distancing, tests, and dual teaching (both in presence and online).

Exactly, you must respect all the rules to prevent contagion and therefore masks and distancing. (university, south, Pos. 1467)

if we really want to be sure that the virus does not spread in the university, shouldn't the swab be used for everyone who enters the university, as it is the only instrument with a high percentage of detection of the virus? (university, north, Pos. 25297)

However, I would like to see mixed teaching, both face-to-face and online, at least in the first semester so as not to increase the risk of infection and to allow everyone to get vaccinated. The situation in [place], with transport and everything, means that the risk of contagion is too high, even for those who are vaccinated and may be carriers. I don't feel like taking the responsibility of walking around in [place], even if I'm vaccinated, and putting other people's life at risk. (university, center, Pos. 2095 – 2102)

However, in the same groups there is a strong critique of the dehumanization caused by online teaching, and tests are perceived as burdensome (economically and physically) and as unfair:

In spite of the effort to reach the university, it is not real university what you do online. [The real one is] made of people, looks, REAL dialogues; it is precisely the effort and the time spent to go to the university that sanctions its founding and formative value. Distance learning is not an appropriate cultural medium. (university, north, Pos. 19204)

the test becomes an economically limiting tool for the individual, since university students are not guaranteed free access to this service at all, which puts an economic burden on those who choose not to vaccinate. (university, north, Pos. 25298)

Other aspects: Anti-test and anti-mask positions

Although more testing and a systematic use of masks are sometimes suggested as a preferred protection strategy, many users have concerns about both. Some users think that tests and masks do not work, some think tests are dangerous as while collecting a mucus sample it is possible to damage the brain, some believe that masks are dangerous as they create bacterial colonies.

I still don't understand... (it's rhetorical and sarcastic) why for the most contagious virus that spreads with a single droplet - with aerosol even, in the air... you have to pierce all the way to the encephalic barrier and up to the pineal gland? Maybe because otherwise you don't assimilate graphene oxide & who knows what else? Vets have long used nasal vaccination. Ps. There have been cases of rhinoliquorrhoea, i.e. loss of cerebrospinal fluid, dizziness, abnormal migraines, etc., but of course, as with everything else, everything is covered up and minimised. (university, north, Pos. 11697-11698)

The mask does not protect against viruses. Instead, it creates colonies of bacteria that you breathe in, as well as other filth that I won't tell you about, not to look like a

conspiracy theorist. My colleague's comments on Dr Gatti are right. A great nanopathologist. (university, north, Pos. 742)

Other aspects: Reliance on anecdotal evidence

Users often bring information to support their claims. Sometimes they link to blog posts, seldom to scientific studies or to statistical analyses. Sometimes they engage with such information critically, sometimes they don't. Of note, stories based on anecdotes and personal narratives tend not to be questioned:

My grandfather died with covid. We followed what the doctors said about treatment at home for my grandmother. She survived. My grandfather wanted to follow the standard procedure instead. 2 weeks worsening. Intensive care and death. (university, center, Pos. 13863 – 13866)

I spoke to a doctor from [place]. Do you know what they do to make it look like only the unvaccinated are in the ICU? When covid patients come in, even those vaccinated with two doses, they have orders to move the vaccinated to other wards and leave the unvaccinated in the ICU. (university, north, Pos. 24524)

Discussion

Our analysis clearly shows how the green pass has become a proxy and a catalyser for vaccine scepticism. Especially during this time, people and politicians supportive of vaccines strongly oppose vaccine scepticism or denialism, and the discussion about the dangers of vaccines, as well as the conspiracy theories and the misinformation in general, are not considered relevant and are “silenced”, since these positions are not backed up by scientific evidence. Anti-vaccine supporters have come to learn that shifting their focus on the green pass, allows them to bring new arguments which are more likely to be heard – to indirectly counter the use of vaccines. In fact, questioning the validity of the green pass, rather than that of vaccines, is seen as less socially problematic albeit it remains strictly connected to the discussion about vaccines. In practice, the green pass has become the fig-leaf of the anti-vaccine movement.

That said, it is also important to note that tensions and diverging narratives exist, even within the groups under analysis. As our results show, moderate positions (i.e. COVID-19 is an issue, but the green pass is not an appropriate measure) coexist with conspiracy theories (i.e. COVID-19 does not exist and COVID-19, vaccines and the green pass are part of a bigger plan). De facto, opposition to the green pass is what glues together these opinions and attitudes. This opposition is often justified on the grounds of a naïve idea of freedom, conceptualized in a normative, consequentialist, or principlalist form.

Based on our findings, we believe it is possible to trace some recommendations for public health authorities and political institutions engaging with communication on these topics:

1. Acknowledge the doubts of anti-green pass individuals without dismissing their opinions and arguments as ramblings;
2. Disambiguate the purpose of the green pass: it should be made clear it is a tool intended to incentivize vaccinations – and thus to protect people; not only people who cannot get vaccinated, but also to protect everybody's personal freedom (i.e. those who are not willing to risk to contract the virus but still desire to enjoy a meal in a restaurant, watch a theatre play or a football match in a stadium, etc). We see this discussion as a reminiscent of the long-standing debate about smoking in closed environments.
3. Since freedom is an important topic, counteract the models of freedom in which the opposition to the green pass is grounded, offering alternatives, e.g. Rawls' “greatest equal liberty” principle (25),

according to which each person should be given the most extensive basic freedoms that are compatible with another person's freedom.

4. Clarify the legal basis of the green pass, explaining how it is founded and regulated in existing jurisprudence, and how its scope and application is defined and limited by the contingency of the pandemic. It is necessary to explain why it has a specific "expiry date" and under which circumstances and for how long people should expect these measures to be in place;
5. Keep informing about vaccines, with a specific focus on transparency and risk-benefit balance. In this context, complement as much as possible narratives based on data and scientific evidence with personal narratives (still backed up by science), as according to literature (26) and to what we found in our data, they are easier to relate to and can be more effective.

Ethical considerations and recommendations

A plea for active social listening

Communication is a key component of human life. The ability to communicate privately with others can be understood as an expression of the right to privacy. Privacy, in turn, is not a luxury that can be easily overridden by other, seemingly more urgent or more important needs. Rather, it is a fundamental human right recognized by the UN Declaration of Human Rights and many other international and national treaties. The current pandemic has presented us with tricky dilemmas regarding the protection of both privacy and public health. Although there is no doubt about the need for effective management of the pandemic, concerns have been voiced that "measures taken to control the spread of COVID-19 have negatively impacted the enjoyment of the right to privacy and other human rights" (27). These concerns become even more acute when measures are coupled with AI technology that can enhance not only analysis and forecasting but also the ability to effectively target the behavior of groups and individuals (28). The key ethical question is therefore how effective communication and management during important public health crises such as pandemics is possible without undermining privacy as a human right.

Telegram grants end-to-end encryption, and encrypted communication might grant a sense of safety to users. In fact, due to this perceived safety, often it's chosen for illegal activities – as it happened for the sale of false green passes (15). But when a curious user acquires access to the group, either directly or with social engineering techniques, he has access to the entire history of the chat, no matter the encryption.

It is worth noting that similar or related groups often cross-share messages; when a message is shared, it incorporates a link to the original chat where it was posted. Thus, scraping chats for 't.me' links it is rather simple to obtain access to related groups. Finally, it is important to mention that often these groups use bots offering more advanced moderation features, e.g. silencing a user for a specified amount of time. As bots come to users as black boxes, it would not be difficult to load them with malicious features, e.g. sending the links of the chats where they are used if specific rules fire.

Even when users do not use their name and surname as their username, still there are many possible strategies for reidentification. Users might share emails, locations, even pictures. Crossing this information and identifying a person is just a matter of amount of data, time, and commitment.

Having proven that the approach and the techniques detailed in this paper can provide useful and deep insight on critical topics debated telegram groups, we still tend to think that these techniques should not be applied broadly for social listening. We live in a time in which societies are already suffering a progressive loss of trust, and techniques of 'passive' social listening – intended as collecting information from digital communities without engaging with them – can only worsen the situation. Passive social listening, as detailed in this paper, is incredibly powerful, as it can extensively and rapidly map communities, measure their discussions, potentially help predicting protests and violent actions. On the other hand, 'active' social

listening – intended as actively asking people their opinion on delicate topics such as vaccine distribution strategies or safety measures – is slower and less comprehensive, as it depends on creating efficient bidirectional interfaces between the public and authorities. But it has a big advantage: it can build trust rather than undermining it further. Engaging directly with communities, offering concerned people the possibility to voice their worries can create a sense of not only being listened to, but of also being heard, recognised, and valued.

A recent example for an active social listening tool is PubliCo (29), an online platform that collects data on public perception of the pandemic and its management. Following a participatory, citizen science approach, it invites users not only to provide data, but also to suggest new survey items or to research the database with queries of their particular interest (30).

Transparency and recommendations

The software and the procedure we developed are subject to the dual-use problem. In non-democratic regimes they could be used not only to map and understand dissent, but to eradicate it. Our decision to share it is motivated by three reasons: first, science should be open and transparent in its objectives, means, and methods, not only in its findings. Second, as Steven Levy noted: ‘If you don’t have access to the information you need to improve things, how can you fix them?’ (31). Pavel Durov, Telegram’s founder, stated that ‘Telegram must continue to serve the world as an example of a tech company that strives for perfection and integrity’ (32). If Telegram wants to stay true to that claim, the company needs to know how a characteristic of their software can be exploited as a vulnerability compromising users’ privacy. Third: if a non-democratic regime would want to develop a similar system, it could do it anyways – unless this vulnerability is fixed.

Limitations

As we collected our data from public telegram groups, our sampling is not representative of the general anti-green pass population. We do not have any information about the magnitude of the phenomenon, nor do we have demographic variables to stratify the analysis. However, the sample is relevant for the scope of this study and we can characterize why and how these groups oppose the green pass, drawing reliable conclusions and outlining possible approach strategies. Our approach to thematic analysis departs from standards: in thematic analysis data should be disassembled and reassembled in a different shape to reveal its themes and patterns (33,34) with a bottom-up approach to coding. Codes should emerge during the analysis to capture emerging and unforeseen phenomena – which contrasts with the very notion of autocoding we employed. To mitigate this, we adopted an iterative process with continuous testing, analysis, and expansion of the rules. Still, we believe autocoding is a good compromise to map the content of large volumes of data in a reasonable time.

Conclusion

Through our social listening analysis on Telegram chats we conclude that a large fraction of anti-green pass individuals share anti-vaccine views. We also show they generally do not argument their opposition to the green pass with anti-vaccine rhetoric, but rather focus on legal aspects and limitations of personal freedom. We suggest public health and political institutions to provide a legal explanation and a context for the use of the green pass, as well as to continue focusing on vaccine communication to inform hesitant individuals. Finally, we point to the ethical ramifications of our research and propose ways to ensure social listening analysis is transparent and ethically sound. Further work is needed to define a consensual ethical framework for social listening for public health.

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