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Contents

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ABSTRACT

Various forms of reaction to compulsory measures taken by the Greek government during the COVID-19 pandemic, represent a complex interplay of socio-cultural, political, and emotional dynamics. We examine these forms of reaction –our "anti-vaccination movement"– ranging from vaccine hesitancy to vaccine rejection and opposition to lockdowns, through a multi-layered approach, which includes social media analysis, interviews, and a nation-wide survey. Findings indicate that resistance to obligatory measures stems from deep-seated mistrust in institutions, skepticism of government measures, and concerns over personal freedoms. Structural predispositions of the Greek political culture, such as clientelism, fragmented social trust, and egotistic cultural tendencies further exacerbated opposition. While most Greeks ultimately adhered to vaccination campaigns, the underlying resistance reflects broader societal challenges, including polarization, misinformation, and a crisis of trust. Addressing these issues requires tailored communication strategies, enhanced institutional transparency, and long-term efforts to rebuild collective solidarity and civic engagement.

Keywords: COVID-19; lockdown; vaccine hesitancy; conspiracy theories; mistrust; misinformation; clientelism

CVs

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Theodore Chadjipadelis is a Professor of Applied Statistics and the director of the Laboratory of Applied Political Research since 2001. His research interests cover the fields of Applied Statistics, Educational Systems, Teaching and Learning Statistics and Social Sciences, Public Opinion, Political, Social and Electoral Behaviour, Urban and Regional Planning. He has published more than 150 papers and books. He has participated in more than 100 conferences, in many of them as member of the scientific and/or organizing committee. He served in many positions in the University and in public administration. He is Head of the Committee for Control of Public Surveys, vice president of the Greek Data Analysis Society, director of the Observatory for Democracy in the Balkans and president of the Aristotle Center of Social Research.

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Introduction

The COVID-19 pandemic, declared a global emergency by the WHO on March 11, 2020, had a profound impact on Greece, both in terms of public health measures and societal reactions. From the first reported case on February 26, 2020, Greece swiftly implemented preventive measures, including lockdowns, travel restrictions, and the closure of public spaces. The government's early response emphasized the importance of public compliance with the measures, while regular public briefings by health officials were held to keep the public informed.[5]

As cases decreased, restrictions were lifted cautiously in May 2020, but subsequent waves, particularly in autumn 2020 and summer 2021, led to repeated lockdowns and increased strain on Greece's healthcare system. Furthermore, the vaccination campaign, launched in December 2020, faced challenges from vaccine hesitancy, driven by distrust in pharmaceutical companies, fear of side effects, and misinformation spread by social media and opposition parties. Despite public health campaigns and incentives, opposition to mandatory vaccination and restrictions grew, especially among certain demographics, including younger and rural populations.

Public reactions evolved from initial compliance to frustration and resistance as the pandemic progressed. Economic hardship, coupled with social isolation, fueled anti-lockdown protests, particularly during the second lockdown in November 2020. The government's imposition of mandatory vaccinations for healthcare workers and fines for unvaccinated seniors intensified opposition, with critics framing these measures as infringements on personal freedoms.[6] Protests sometimes escalated into clashes with police, highlighting societal polarization (Apostolopoulou & Liodaki, 2021; Zestanakis, 2023; Markantonatou, 2021; Dimari & Papadakis, 2023).

Opposition parties criticized the government for its pandemic management, accusing it of inconsistency, authoritarianism, and mismanagement. Public debates on balancing economic needs, personal freedoms, and public health persisted throughout the pandemic, revealing deep societal divisions. By spring 2022, as restrictions eased and economic recovery became a priority, Greece shifted focus to revitalizing industries and continuing vaccination efforts, but the pandemic left a legacy of contention and reflection on governance and collective responsibility.

We consider this reaction only the latest, and most serious, escalation of the rise of anti-vaccine sentiments, discourses and social mobilization, with social media paying a particularly important role in

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5 For reports concerning the monitoring of the pandemic by Greek health authorities see Παρατηρητήριο Covid19 https://covid19.gov.gr/category/paratiritirio/; for societal effects of the pandemic see Hellenic Statistical Authority https://www.statistics.gr/en/covid-19?utm_source=chatgpt.com.

[6] For reports concerning alleged governmental abuse of power during the pandemic, see Amnesty International https://www.amnesty.org/en/latest/news/2021/07/greece-authorities-abusing-power-to-trample-on-right-to-protest-2/?utm_source=chatgpt.com; Proto Thema newspaper article https://en.protothema.gr/2021/02/28/crowd-in-thessaloniki-protests-against-covid-19-lockdown-videos/; Monitor Civicus https://monitor.civicus.org/explore/protests-against-mandatory-covid-19-vaccinations-right-protest-under-threat-during-pandemic/?utm_source=chatgpt.com. For Mapping coronavirus anti-lockdown protests around the world including Grrece see https://www.aljazeera.com/news/2021/2/2/mapping-coronavirus-anti-lockdown-protests-around-the-world/?utm_source=chatgpt.com

organizing and shaping these scattered voices into quasi-social movements, reinforced by strong opposition to repeated lockdowns. Emerging out of various grass-roots sources of discontent, these discourses have succeeded in increasing frustration over vaccination policies of a significant proportion of the Greek population, resulting on the one hand in unnecessary deaths of infected people who rejected vaccination available to them[7], and on the other hand the formation of a wider "anti-systemic" network of people which surpasses the strictly anti-vaccination movement, with just one consequence being that of the rise of the far-right parties (Rori, L., Georgiadou, V., & Roumanias, C. (2022).

With this in mind and taking into account a number of empirical research findings concerning social attitudes toward vaccination policies implemented during the COVID19 pandemic [Caserotti et al. (2023); Benoit & Mauldin (2021); Dal & Tokdemir (2022); Abad et al. (2023); Salati (2022) Bollenbacher (2024); Poddar et. al. (2024); Yewell et al. (2024)] we hypothesize that the strong reactions constitute indirect expressions of deep structural factors that characterize the Greek society, and particularly so its following traits (Marangudakis, 2019):

(a) small symbolic differences between the political center and its periphery, and thus low ability of the center to impose its will or policies to the periphery

(b) low degree of internal solidarity, and symbolic and organizational autonomy of peripheral actors, which do not allow them to access collective resources for the realization of their goals, but only through patrons

(c) low level of corporate, symbolic and organizational autonomy of the periphery, along with a lack of collective consciousness and identity based on stable organizational grounds

(d) relatively low tension between the immanent and the transcendental orders in the framework of the Orthodox religion, combined with a strong otherworldly orientation

(e) generalized clientelism and patronage.

There are three major consequences of these organizational and symbolic configurations: (a) limited social trust; (b) a passive definition of identity and no incentive in initiating new types of social interaction and resource exchange; and (c) low level of capability of formal institutions to impose obligations, and responsibilities on social actors. Their interplay creates a complex setting where skepticism, resistance, misinformation and passive non-compliance thrive. The limited social trust, both in formal institutions and among individuals, fosters an atmosphere of doubt toward centralized mandates like lockdowns or vaccination campaigns. This skepticism is further exacerbated by the weak organizational and symbolic autonomy of peripheral actors, which inhibits their ability to engage collectively and effectively in addressing the crisis. Without a shared sense of identity or purpose,

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[7] https://covid19.gov.gr/covid19-live-analytics/

individuals and groups are less likely to align themselves with collective health measures, leading to fragmented and inconsistent responses.

In this context, we, furthermore, hypothesize that resistance to implemented public health policies emerged as a reaction to perceived overreach by a central authority that lacks strong legitimacy or the capacity to enforce its will uniformly. At the same time, passive non-compliance—manifesting as apathy or indifference rather than active protest—becomes a common response due to the absence of incentives for new types of social interaction or resource exchange.

These dynamics collectively undermine the potential for unified collective action and communication with health authorities which is crucial for effectively managing a pandemic. Without trust, cooperation, or a cohesive framework for mobilizing societal support, public health efforts are met with resistance and diminished adherence, ultimately reducing their effectiveness in controlling the spread of infection.

Last, this pattern of mistrust and discontent encourages social movements, political parties and ideological entrepreneurs to define politics as a struggle between good and evil fostering an image of political arena as an endless Manichaean struggle of light versus darkness (Marangudakis, 2019. This becomes particularly felt in the chronic intense rivalry between parties, manifested in a generalized and limitless confrontation between the (any) government and the (any) opposition. The pandemic period did not escape such partisan behavior. The opposition parties, soon after the outbreak, began to question the management of the crisis with escalating intensity and scope of criticism which involved even the quality of vaccines supplied by the government.[8] Such a background of political rivalry and questioning of measures encouraged and legitimized a variety of grass-roots arguments against vaccination policies and measures.

In all, taking into consideration the presence of a diffused sense of discontent, clientelism and social fragmentation, and a chronic political rivalry as possible sources of reaction to vaccination measures, we examine:

(a) The specific discursive and organizational qualities of the anti-vaccination stand, even "movement" and sub-movements

(b) The popularity of the anti-vaccination movement and the basic worldview(s) and/or position in the division of labor that distinguishes them from the wider public

(c) Sources of mistrust

(d) The proliferation and impact of conspiracy theories and the role of social media.

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[8] See newspaper ΤΟ ΒΗΜΑ (27/12/2020) "Αλέξης Τσίπρας: Επιφυλάξεις για την ταχύτητα ανάπτυξης των εμβολίων" που δημοσιεύθηκε στις 27 Δεκεμβρίου 2020.

Research Methods and Analysis

The study combines three research and analysis methods: (a) analysis of networks-clusters of social media (Twitter) communication between users/followers of the anti-vaccination movement in all its variants, (b) interviews of key-proponents and ad hoc "leaders" of the anti-vaccination movement, (c) a survey of the general population to detect various interconnections amongst various anti-vaccination social trends and perceptual predispositions and worldviews.

The chosen methods in this study provide a multi-dimensional approach to understanding the anti-vaccination movement in Greece. Each method addresses a unique facet of this phenomenon, allowing for a comprehensive analysis that captures structural, individual, and societal perspectives as follows:

a. Network and Cluster Analysis of Social Media (Twitters)

The network and cluster analysis of Twitter messages are used to map out the relationships and communication patterns between users who follow or engage with the anti-vaccination movement online. This method is essential for understanding how information flows within this community, as well as identifying key influencers and tightly knit subgroups. By analyzing clusters within the anti-vaccination network, we could pinpoint high-engagement hubs, observe how misinformation or specific discourses propagate, and detect sub-movements within the broader anti-vaccine sentiment. This structural map of social connections and interactions offers a foundational understanding of the movement's social dynamics. It reveals not just who communicates with whom but also the density, strength, and centrality of relationships within this space. This level of insight is crucial for identifying potential points of intervention and understanding how social pressures, group identity, and influence mechanisms might affect individuals' beliefs and actions.

b. Interviews with Key Proponents

While network analysis reveals the social structure, interviews with key proponents and ad hoc leaders provide a qualitative depth to the study by exploring individual perspectives within these social networks. Interviews capture personal motivations, ideological beliefs, and subjective experiences, offering insights that quantitative data cannot fully uncover. By speaking directly with movement leaders and influential figures, researchers gain an understanding of the ideological narratives, emotional appeals, and strategic objectives that underpin their messaging. This perspective complements the network analysis, adding depth to the understanding of group dynamics and motivations within the anti-vaccine community.

c. Survey of the General Population

To understand how anti-vaccination sentiments interact with broader social and political attitudes, the study incorporates a survey of the general population. The survey investigates general attitudes toward vaccination, political orientations, and perceptions of democracy, among other factors. By sampling 1,220 respondents across Greece, the survey captures public sentiment and identifies correlations

between anti-vaccination beliefs and other ideological or perceptual predispositions, providing a representative snapshot of societal attitudes. It identifies patterns of vaccine hesitancy within the general population, provides demographic and ideological breakdowns of anti-vaccine and lock-down sentiment, and uncovers links between vaccine attitudes and other worldviews. This data is essential for identifying wider social trends and understanding how anti-vaccination beliefs align with broader worldviews, such as mistrust in institutions or anti-systemic sentiments.

d. Integrating the Methods: A Comprehensive Approach

The integration of these methods creates a multi-layered framework that captures the anti-vaccination movement's complexity from different angles. The study begins with a network and cluster analysis to map the movement's structure, identifying influential clusters and communication patterns. This structural map lays the groundwork for exploring who the key figures are, how information flows within the network, and where focal points of influence lie. Once the network structure is understood, interviews with leaders and key proponents allow researchers to explore the individual perspectives and motivations within the movement. This phase adds a human dimension to the social structure, helping to explain the personal and ideological motivations behind participation in the movement. Following the interviews, the survey extends the analysis to the general population, revealing how anti-vaccine attitudes fit within broader societal views and demographic patterns. This step identifies ideological and demographic correlates of vaccine hesitancy, providing a quantitative grounding that complements the network and interview findings.

The Study

A. Network and Cluster Analysis of Social Media (Twitters)

1. Methodology

This research analyzes Twitter data to explore popular attitudes regarding COVID-19 vaccine reluctance in Greece throughout the pandemic. This research fully complies with ethical standards and institutional guidelines, ensuring that all data collection and analysis procedures were conducted with respect to participants' data and rights. Specifically, the study adhered to the General Data Protection Regulation (GDPR) and followed Twitter's policies (European Union, 2016) (Twitter, 2024).

We consider the 12-month period between August 2021 and August 2022 to collect Twitter messages written in English and Greek. During the study period, 5.796 were extracted after data cleaning. The analysis includes an approach that combines machine and human annotation to classify and interpret the collected data. Initially, an algorithm based on natural language processing techniques was applied to automatically categorize tweets into predefined categories such as "pro-vaccine," "anti-vaccine," or

"neutral". Subsequently, human annotation was conducted to ensure contextual accuracy and address limitations of the automated analysis. This step was critical for refining classifications and capturing nuance such as culturally specific expressions, sarcasm, or irony, which are often missed by algorithms. The manual review provided additional depth, allowing for the identification of nuanced themes and narratives that emerged.

The main hashtags identified in recent research are #covidvaccine, #vaccinetruth, #stopvaccines (Mheidly & Fares, 2020) and the main narrative was distrust in government and pharmaceutical companies, personal freedom, and health concerns. The hashtags that emerged through our research were #όχι_εμβόλιο, #ελευθερία, #αρνητές_εμβολίου #αντιεμβολιαστές, #covid19ψέματα, #εμβόλια_σκοτώνουν in Greece and underlined distrust in the government, fear of vaccine side effects, belief in natural immunity as key online discussions. Greek Data Analysis by Research Group from the University of Athens (2022) pointed out 70% negative sentiment towards vaccines, under the hashtags #αντιεμβολιασμός, #ατομική_ελευθερία, #εμβόλιο_αλήθειες including high levels of interaction within like-minded virtual communities, reinforcing opinions and claims.

Since the research is mainly hashtag oriented, a primary dataset User Generated Content (UGC) was collected through a customized documented Application Programming Interface (API), through Twitter. The primary key hashtags are carefully selected from research datasets that were extracted from past research. The methodology includes three steps: Data Collection and Preprocessing, Exploratory Data Analysis and Cluster, Network and Thematic Analysis. To comply with the regulations publication of raw Twitter data cannot be shared. Consequently, the data released do not contain personally identifiable information.

An academic twitter account was created, to access the platforms API for accessing relevant data. During the application process for the developers' account specific details were provided to Twitter about the project and the types of data that this research needs to access. Also, further Web Scraping techniques were used, mainly using Python and combining tools that help automate the process of extracting data. Data Preprocessing includes cleaning as well as preprocessing the collected data to extract relevant information. This involved removing noise, filtering out irrelevant content, and preparing the data for analysis. Regarding the content analysis and classification, the textual content of tweets was used in order to extract keywords, phrases, or language patterns associated with anti-vaccination claims. The main hashtag of communication that is used in tweets related to the anti-vaccination movement in Greece is #antivax. This analysis focuses on language, regarding vaccine hesitancy content on Twitter, under relevant hashtags and/or statements. The final dataset includes 2000 annotated data that include the hashtag #antivax.

Hashtag	Number of Tweets
#antivax	2000 (total number analyzed)
#αντιεμβολιασμός	551 (in #antivax)
#εμβολια_σκοτώνουν	45 (in #antivax)
#ατομικήελευθερία	246 (in #antivax)
#δικαιώματα	32 (in #antivax)

To achieve some generalization of findings, ideal types were developed to indicate the diverse motivations, beliefs, and behaviors underlying vaccine hesitancy (Weber, 1976). Each ideal type represents a perspective/worldview, shaped by individual experiences, cultural influences, and socio-political factors. Each one of them is analyzed as structured around basic moral bipolarities (Alexander & Smith, 1993) allowing to take a glimpse of their worldviews.

2. Multilayered Categorization of Vaccination Attitudes: Clusters and Ideal Types

The research proposes a specific categorization in clusters and ideal types, revealing the complexity of attitudes toward vaccination, offering a complex understanding of the factors shaping hesitancy. The clusters (see below) illustrate how socio-cultural values, that is values underlying preferences, priorities, and attitudes in relation to self, society, and authority (such as autonomy, collectivism, or opposition to authority), influence online behavior and narratives regarding vaccination. Simultaneously, the ideal types (see below) provide a more detailed categorization, illuminating **motivations, tendencies and social influence** related to COVID-19 vaccination. This multilayered categorization emphasizes the diverse aspects, emphasizing the need for targeted interventions tailored to the specific concerns and beliefs.

2.a. Cluster analysis

The first step of the analysis involves the identification of clusters through the review of online interactions, such as tweets and hashtags, comments, and user networks. Patterns of discourse were mapped and grouped based on shared values and dominant narratives, reflecting broad social orientations.

It is of main importance to acknowledge that vaccine hesitancy concerns are complex and multifaceted, influenced by a heterogeneity of factors, including individual beliefs, social norms, cultural values, and systemic barriers. These online social constructs create groups that follow specific hashtags, creating an environment that discourages opposing claims. A first, strictly textual (see ANNEX), analysis traced three main hesitancy clusters. The identified clusters **Individualist**, **Collectivist**, and **Rebel** represent critical insights into vaccine hesitancy:

Individualist: With emphasis to personal autonomy and distrust of external mandates, this cluster echoes themes found in studies on vaccine hesitancy globally. Relevant research of Larson et al. (2014) highlight that mistrust in institutional processes often encourages such individualistic attitudes, where personal freedom and autonomy is prioritized over collective health (Larson, 2014). Furthermore, Goldenberg describes describes, how undermined trust in health authorities modify hesitancy, as seen in this cluster's reliance on alternative information sources (Goldenberg, 2021).

Collectivist: The collectivist mindset aligns with theories of social trust and solidarity, emphasizing the role of cultural and historical contexts in shaping collective attitudes (Fukuyama, 1995). Additionally, research on modernity underscores how communal trust can foster compliance with health initiatives or skepticism depending on the community's past experiences with public health interventions (Giddens, 1990). Furthermore, this cluster seeks out community-based solutions.

Rebel: Top-down approaches to public health are rejected and many of the individuals that belong to this cluster, considering their denial to be vaccinated as a form of resistance against perceived injustices (Douglas, 2019). Their rebelliousness often manifests as an identity, driven by perceived injustices and amplified by narratives of government overreach.

Thus, while both "Individualists" and "Collectivists" do not reject vaccination out of hand, they are concerned about the process by which vaccination takes place in principle; on the contrary, the third cluster, the "Rebel", disapproves and questions the legitimacy of any action or policy initiated from above.

The scheme below (Figure 2) synthesizes these clusters, illustrating the distinct but interconnected dimensions of vaccine hesitancy. Each cluster highlights different concerns, reasoning, and approaches that shape vaccine hesitancy within their specific contexts.
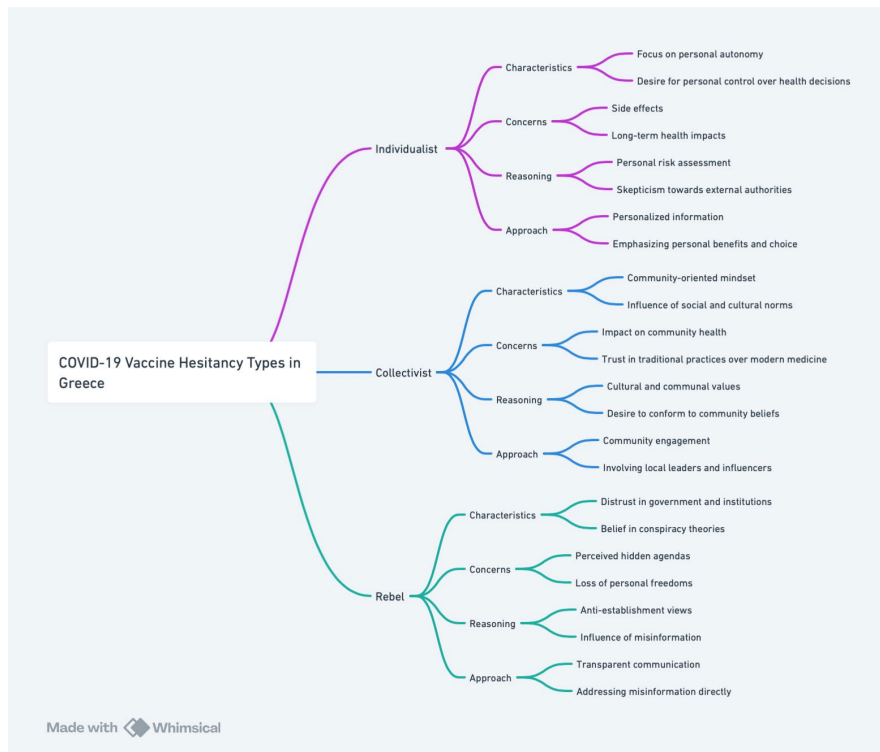
Figure 1 COVID 19 Vaccine Hesitant Clusters

2.b. Ideal Types

The second step analysis led to the identification of specific ideal types. Through qualitative analysis of the language, expressions, and arguments used within the clusters, five ideal types were derived: Rationalists, Conspiracists, Spiritualists, Procrastinators, and Fatalists. These ideal types represent attitudes and behaviors, rooted in specific tendencies and social contexts. This process of categorization allowed for a broader understanding of the motivations of hesitancy, providing a framework for targeted interventions and recommendations.

The development of the ideal types is grounded in Max Weber's concept of ideal types, which offers a framework for understanding complex social behaviors (Weber, 1978). Textual analysis helps us to identify key themes and sentiments related to vaccine hesitancy, such as skepticism, fear of side effects, and moral objections, while discursive network analysis depicts the relationships between different discourses and social actors. By integrating these methods, a framework to classify vaccine-hesitant individuals into five ideal types is presented:

-**Skeptical rationalists**: They express concerns regarding the safety, efficacy, and the necessity of obligatory vaccination and require transparency and consistent evidence before they comply with public health guidelines.

-**Conspiracy theorists**: They are convinced by unconfirmed theories, such as claims that vaccines contain microchips or that vaccination is a part of a government-led population control agenda.

- **Spiritualists**: They embrace alternative forms of healing such as "new age" healing methods (homeopathy/herbalism) or believe that vaccination is against God's will.

-**Procrastinators**: They acknowledge the importance of COVID-19 vaccination but may procrastinate.

-**Fatalists**: Individuals who, while they accept the official discourse of being vaccinated for health reasons, and they are willing to be vaccinated, still they are overwhelmed by the risks involved in the process.

These ideal types offer a framework for understanding the diverse motivations behind vaccine hesitancy in Greece.

In detail, these ideal types are formed around the following hashtags:

Sceptical Rationalists

Skeptical Rationalists are open to changing their minds in response to compelling arguments or new information, but they still remain concerned about the possible risks and uncertainties related to vaccinations. Rationalists value evidence-based decision-making and scientific research, expressing wide concerns, engaging in rational evaluation and expert opinions.

Related Hashtags

      #VaccineSafety

      #QuestionVaccines

      #αντιεμβολιασμός

      #ΑσφάλειαΕμβολίου

      #ΕνημερωμένηΑπόφαση

      #Αμφιβολία

      #ΔικαίωμαΣτηΓνώμη

Conspiracists

Conspiracists discard conventional narratives related to COVID-19 vaccines and instead prefer to endorse unconventional explanations based on "alternative" theories. They distrust government institutions, pharmaceutical companies and mainstream media sources, and they are convinced that they are all part of a secret agenda, created by the people who hold the power in order to harm or control the general population. They tend to follow "trusted" influences who outreach alternative narratives about COVID-19 vaccines.

Related Hashtags

#BigPharma

#VaccineHoax

covid19ψέματα

#εμβόλια_σκοτώνουν

#Φαρμακοβιομηχανίες

#ΚυβερνητικήΑπάτη

#ΔολοφονικάΕμβόλια

Spiritualists

Spiritualists follow cultural practices that discourage or reject vaccination, since they assume that it is a violation of sacred principles or divine will. Usually, they rely on public personas or spiritual leaders for guidance in order to decide on vaccination. Some Orthodox small-scale, local, leaders were clearly and intensively opposed to vaccinations, expressing concerns related to the moral and ethical dimensions.

Related Hashtags:

#NoVaccines

#MedicalChoice

#ΦυσικήΑνοσία

#covid19ψέματα
#ατομική_ελευθερία

#ΠαραδοσιακέςΘεραπείες

#ΠίστηοχιΕμβόλια

Procrastinators

They delay or avoid COVID-19 vaccination due to personal priorities, or perceived low urgency. They lack a sense of urgency or perceive themselves as low-risk for COVID-19, which leads them to postpone vaccination until it lines up with their convenience or priorities.

Related Hashtags

#MyBodyMyChoice

#VaccineDecision

#NotAntiVax

#ατομική_ελευθερία

#ΔικαίωμαΣτοΣώμαΜου

#ΌχιΤώρα

Fatalists

They approach vaccination with fear, and they are driven by anxiety about potential risks and consequences. They are overwhelmed and anxious by stories about detrimental vaccine side effects, leading them to perceive vaccination as inherently risky or dangerous.

Related Hashtags:

        #VaccineInjuries

        #FearNotFacts

        #TrustNoOne

        #εμβόλια_σκοτώνουν

        #Φόβος

        #μαςσκοτωνουν

These ideal types are not isolated from each other. Rather, they reveal overlapping characteristics or motivations, providing an interweaved nexus of discourses which reinforce hesitancy toward vaccination.

Ideal Type	Follows	Rejects
The Rationalist	Evidence-based information, Critical thinking, suspicious of authorities	Partial information, Blind trust in authorities
The Conspiracist	Questioning authorities, Critical inquiry	Mainstream narratives, Government mandates
The Spiritualist	Spiritual/Holistic norms, Traditional values	Scientific evidence, Government intervention
The Procrastinator	Personal autonomy, Informed decision-making	External pressure, Time constrains
The Fatalist	Trust in authority, Personal experience	Uncertainty, Vaccine-related risks

Figure 2 Ideal Types' Perceptions

Clusters and Ideal types correlation

This analysis sheds light on how skepticism, misinformation, sense of personal autonomy (even egoism), and collective concerns interact to produce a conclusive stand toward vaccination:

The first cluster, The Individualist, is correlated with the Rationalist and the Procrastinator, since they all rely on their own reasoning and personal judgement.

The second cluster, The Collectivist, is correlated with Spiritualist and Fatalist, since their decision is based on the authority vested in collective processes and traditional or charismatic cultural practices.

Finally, the third cluster, The Rebel, is correlated with the Conspiracist since refusal to accept authorities and top-down decision making, leads them to accept and promulgate theories that utterly reject both authorities   and   their   policies.
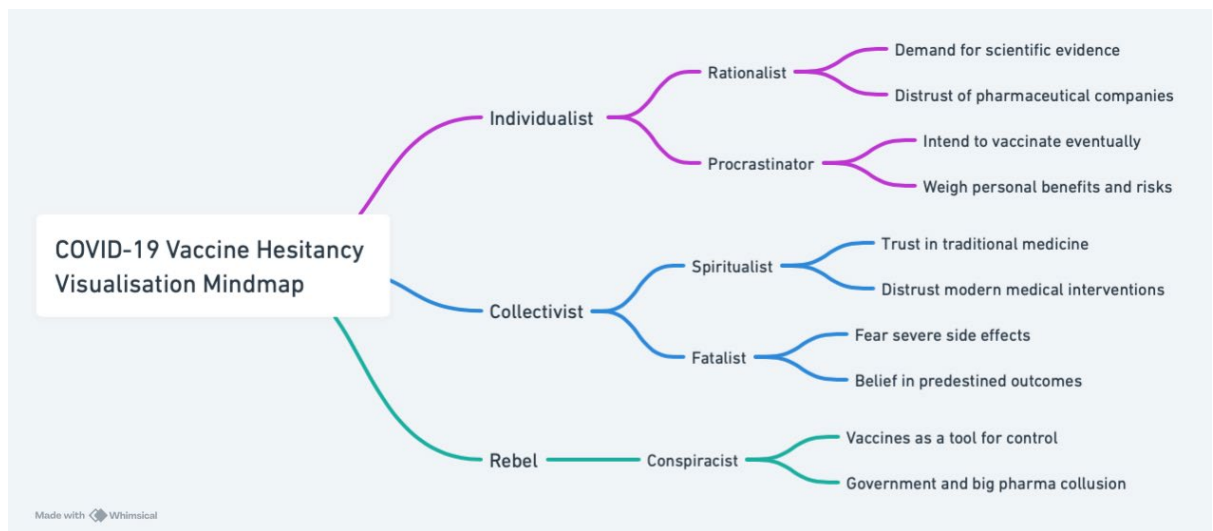

Figure   3   Hesitancy   clusters   and   ideal   types   correlation   chart

3. Network analysis

Recent studies emphasize the importance of network analysis in exploring public health discourse online, more specifically in the context of misinformation and its rapid spread. Similarly, applied network analysis to COVID-19-related misinformation, highlighted how clusters of like-minded users create echo chambers that reinforce skepticism toward vaccines (Cinelli et al. 2020). The following mind-map depicts the beliefs, and the connections with other ideal types.

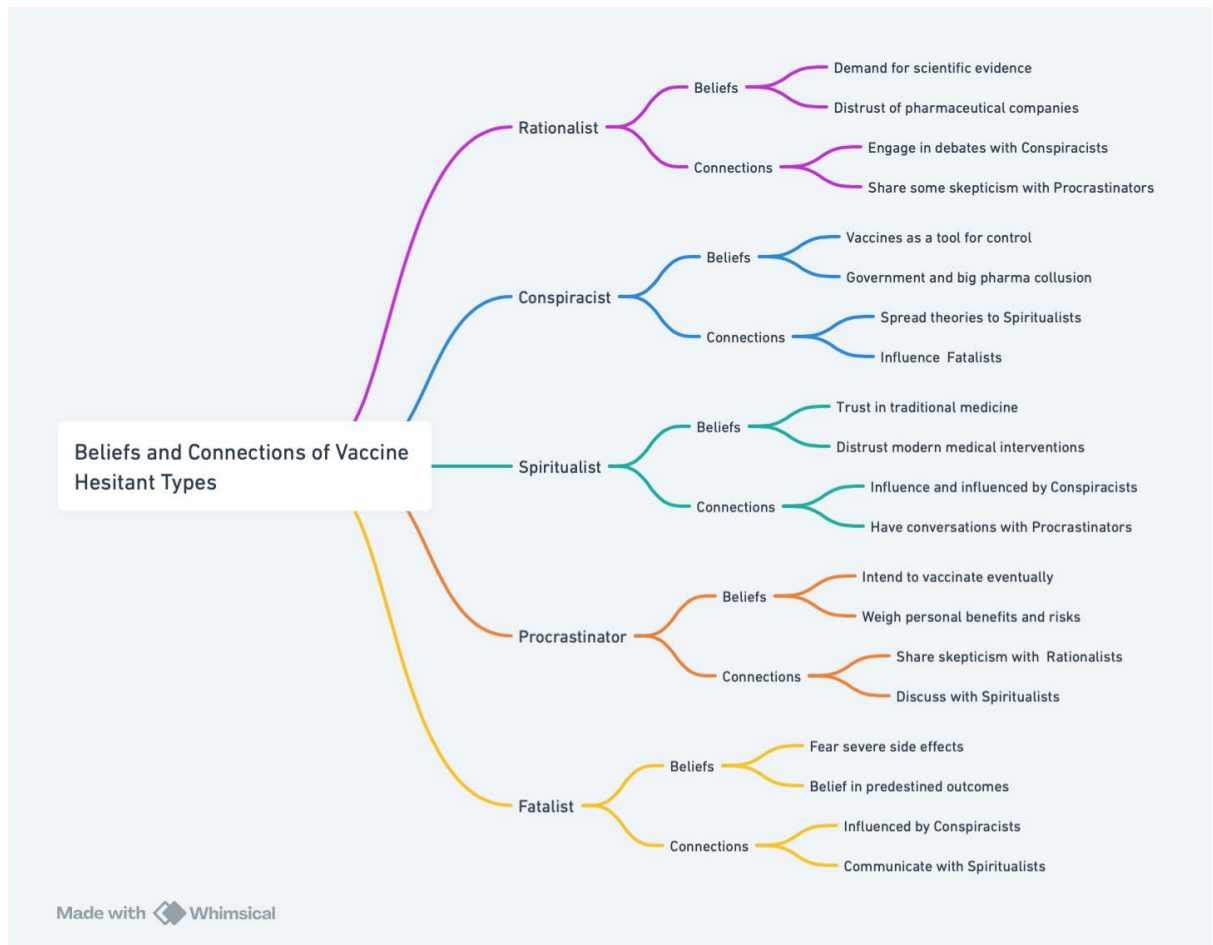*Figure 4 Beliefs and connections of the main hesitancy ideal types*

Additionally, we consider the ideal types as nodes to examine how they interact with specific information centers and sources accordingly. In the following Table 1, the first row represents a node within the social network (a specific ideal type), and the row below describes their specific connections, and the type of information sought out.

Nodes	Connections
Rationalist	Information Sharing, Collaborative Learning, Cross-Validation, Engagement with Authorities
Healthcare Professionals	Collaborative Learning, Engagement with Authorities
Research Institutions	Collaborative Learning, Cross-Validation
Fact-Checking Organizations	Information Sharing, Cross-Validation
Online Communities	Information Sharing, Collaborative Learning, Cross-Validation

Nodes	Connections
Conspiracist	Information Sharing, Engagement with Like-Minded Individuals, Resistance to Authority
Alternative Media Sources	Information Sharing, Engagement with Like-Minded Individuals
Social Media Platforms	Information Sharing, Engagement with Like-Minded Individuals
Online Forums	Information Sharing, Engagement with Like-Minded Individuals
Anti-Vaccine Advocates	Engagement with Like-Minded Individuals, Resistance to Authority

Nodes	Connections
Spiritualist	Influence of Cultural Norms, Engagement with Community, Reliance on Traditional Beliefs
Family and Community Members	Influence of Cultural Norms, Engagement with Community
Religious Leaders	Influence of Cultural Norms, Engagement with Community
Cultural Institutions	Influence of Cultural Norms, Engagement with Community
Traditional Media	Influence of Cultural Norms, Engagement with Community

Nodes	Connections
Procrastinator	Delays in Decision-Making, Seeking Information from Multiple Sources, Engagement with Like-Minded Individuals
Seeking Information Sources	Delays in Decision-Making, Seeking Information from Multiple Sources

Nodes	Connections
Social Media Platforms	Delays in Decision-Making, Engagement with Like-Minded Individuals
Online Communities	Delays in Decision-Making, Engagement with Like-Minded Individuals

Nodes	Connections
Fatalist	Fear of Vaccine-Related Risks, Reliance on Personal Experience
Healthcare Providers	Authorities, Reliance on Personal Experience
Government Agencies	Authorities
Personal Experiences	Fear of Vaccine-Related Risks, Reliance on Personal Experience

Table 1: Nodes and Connections of the five ideal types

Sceptical Rationalists tend to share information, prioritizing critical thinking and evidence-based reasoning. They tend to check information from multiple sources within their network which is based on rationally questioning information to reach some conclusions.

Conspiracists often create communities with other like-minded people who share their distrust of mainstream authorities. They frequently challenge official narratives, and they are constantly looking for alternative sources of information. Their connections are heavily influenced by skepticism of official sources, leading them to prioritize claims that support their theories.

Spiritualists rely on advice and opinions from members of their pre-established on-line virtual community, religious or cultural leaders as well as other personas they trust. This on-line sharing of information and concern most of the times results in skepticism towards scientific evidence which confronts their culture.

Procrastinators rely heavily on their personal condition, and actively seek data and join forces with people who share the same values. However, they often delay making decisions about vaccines due to feeling of external pressures. Within their network, they are supported and encouraged by like-minded individuals and prioritize collecting enough information and data before deciding, which most of the time leads to procrastination.

Last, Fatalists tend to trust authority figures and personas, yet they rely heavily on personal experiences and advice from trusted individuals. They look for reassurance, preferably from healthcare institutions,

government and their personal networks. Their exhibit trust in personal anecdotal stories of suffering caused by vaccines, which reinforces anxiety about potential risks.

In a nutshell, vaccine hesitancy is the end result of very different cognitive processes and network connections, that do not share a common social, political or psychological source.

4. Thematic analysis

Vaccine hesitancy in Greece, as expressed on Twitter, reflects a range of concerns, mistrust and misinformation, like global trends but influenced by national cultural, political, and social dynamics. This thematic analysis aims to uncover the key themes circulating on Twitter related to COVID-19 vaccine hesitancy in Greece, drawing on public discourse, sentiments, and narratives on the OSN.

A key topic emerging from Twitter discussions among individuals who hesitate to vaccinate in Greece is a profound mistrust in government institutions, particularly in relation to the handling of the COVID-19 pandemic. Common sentiments include Twitter statements such as "Why should we trust a government that has failed us in the past?" and "The pandemic response has been chaotic; how can we trust them with the vaccines?".

Spiritual and cultural factors drastically shape vaccine attitudes, particularly through the influence of the "small traditions" of the Greek Orthodox Church. Many vaccine-hesitant individuals on Twitter cite religious and moral claims and some marginal (but influential to some degree) religious leaders express worries regarding the vaccine's compatibility with Orthodox traditions (see on this topic Grabenstein, 2013). Common sentiments include claims such as "God will protect us, we don't need the vaccine" and "Orthodox tradition values natural health, not vaccines".

A significant argument on Greek Twitter is the fear of potential side effects from COVID-19 vaccines, with many users stating concerns over health consequences. This fear is often fueled by unverified stories circulating on social media. Common sentiments include statements like "I'm scared of what the vaccine could do to my body in the long run" and "They say it's safe, but can they really know the long-term effects?". These anxieties are magnified in Greece by the rapid outreach of personal word-to-mouth stories about vaccine complications, creating a sense of distrust. This agrees to Schmid et al. (2017), fear of side effects is a major driver of vaccine hesitancy globally, but in Greece, it is particularly effective due to the spread of misinformation. This fear-based discourse, rooted in personal health anxieties, plays a critical role in delaying or deterring vaccination (Schmid, Rauber, Betsch, Lidolt, & Denker, 2017).

Conspiracy theories around COVID-19 vaccines on Greek Twitter are also fueling vaccine hesitancy. These theories clearly state that the vaccines are tools for government control, that they contain harmful substances such as microchips, or that the pandemic itself was fabricated to justify mass vaccination campaigns. Common claims include "The pandemic was planned so they could control us with vaccines" and "I won't let them inject me with a microchip." Influential figures and activists on

Twitter play a key role in amplifying these conspiracy theories, positioning themselves as defenders of freedom against what they perceive as governmental overreach. This stand is supported by Douglas and Jolley (2014) emphasize that conspiracy theories are a significant factor that influences vaccine hesitancy, and in Greece and platforms like Twitter act as an outlet for the rapid spread of these narratives, making it extremely challenging to promote trust in public health procedures (Douglas & Jolley, 2014).

Procrastination and a sense of low personal risk are common reasons for vaccine hesitancy. Many users express an intent to get vaccinated eventually but delay due to the belief that they are not at immediate risk from COVID-19 or because they perceive the practical process of getting vaccinated as inconvenient. They express claims such as "I'll get vaccinated eventually, but I'm in no rush. COVID isn't a big deal for me.", "Why should I rush to get vaccinated when I'm young and healthy?", "It's too much of a hassle to schedule a vaccination right now." Young individuals in Greece are more relaxed toward vaccination due to the perception that COVID-19 is not a threat to them.

Misinformation and disinformation regarding COVID-19 vaccines have spread rapidly and users often share incorrect or deliberately false claims about vaccine safety, efficacy, and the pandemic itself. Claims such as "I've read articles saying the vaccine doesn't even work" and "The media is hiding the real side effects of the vaccines" reflect the confusion and mistrust powered by these narratives. Misinformation includes false claims about vaccine ingredients and exaggerated reports of opposing effects, which circulate unchecked, amplifying vaccine hesitancy (Wilson & Wiysonge, 2020).

Freedom of choice and individual rights advocacy were very common in tweets arguing against mandatory vaccination. In many of the tweets, there are terms such as "δικαιώματα" (rights) and "ελευθερίες" (freedoms). The distrust against authorities is exposed by the users expressing and referring very frequently words such as "κυβέρνηση" (government) and "fake news." Also, the presence of words "συνωμοσία" (conspiracy) and "τσιπάκι" (microchip), was observed. Health concerns and issues of safety and potential side effects are also a common theme, shown by words like "παρενέργειες" (side effects) and "θάνατος" (death).

Based on the most frequent words and context within the tweets, the top thematic narratives in the discourse of COVID-19 vaccine hesitancy are:

Freedom of Choice and Individual Rights:

This narrative emphasizes freedom of personal choice and the right to decide whether to vaccinate or not. This narrative often perceives vaccination as violation on individual rights.

Keywords: αντιεμβολιασμός (anti-vaccination), δικαιώματα (rights), ελευθερίες (freedoms)

Mistrust in Authorities and Public Institutions:

This narrative states clearly distrust in government, scientific institutions and mainstream media. This narrative includes misinformation and hidden agendas.

Keywords: κυβέρνηση (government), ψευδοεπιστήμη (pseudoscience), fake news

Conspiracy Theories:

Under this narrative conspiracy theories are spread about COVID-19 vaccines, such as microchips, government control, and depopulation agendas.

Keywords: συνωμοσία (conspiracy), τσιπάκι (microchip), έλεγχος (control)

Health Concerns and Skepticism:

Health Concerns and Skepticism narrative summarizes worries about the vaccine's safety and side effects, regarding its effectiveness and the possible health difficulties that can be caused in the future.

Keywords: παρενέργειες (side effects), θάνατος (death), κίνδυνος (risk)

Political and Ideological Opposition:

The vaccine debate narratively is sketched in political and ideological terms, which align anti-vaccine sentiments with broader political ideologies and movements: far-right or left-wing opposition.

Keywords: πολιτική (politics), ακροδεξιά (far-right), αριστερά (left-wing)

Figure 5 Greek COVID -10 Hesitancy narrative themes

In all, the themes that surround vaccine hesitancy is as follows:

Ideal Type	Themes	Key Words
Rationalist	Freedom of Choice and Rights	δικαιώματα (rights), ελευθερίες (freedoms), evidence, data, research
Conspiracists	Mistrust, Conspiracy Theories, Political and Ideological Opposition	συνωμοσία (conspiracy), τσιπάκι (microchip), government lies, hidden agenda
Spiritualist	Mistrust, Conspiracy Theories	traditional, natural, holistic, herbal, alternative
Procrastinator	Freedom of Choice, Health Concerns	wait, undecided, unsure, research, information
Fatalist	Health Concerns	fear, dangerous, risk, side effects, harm

Table 2: Greek COVID -10 Hesitancy Thematic table

While these ideal types seem to be shaped by different networks and connections, they overlap and interact with one another. For example, rationalists and conspiracists discuss within online communities their opinions and perspectives across many ideological boundaries. Similarly, many individuals over time tend to interact with multiple networks at the same time, leading to complex dynamics within the broader vaccine hesitancy landscape.

Building on the fluidity and interaction of ideal types identified in this part of the analysis, the complex dynamics of vaccine hesitancy become even more evident when examining how these types translate into distinct yet overlapping groups. While rationalists and conspiracists, for example, engage in dialogue across boundaries within online communities, similar patterns of interaction and reclassification emerge when exploring individuals' personal narratives. These dynamics demonstrate that vaccine hesitancy is not a static phenomenon but rather a multidimensional landscape shaped by socio-cultural networks and individual experiences.

The next section explores this complexity by categorizing individuals based on qualitative thematic analysis, revealing four primary groups that align closely with the ideal types from the Social Network Analysis. By capturing the distinctive yet interconnected ways people perceive and react to the pandemic, the following section emphasizes the layered and dynamic nature of vaccine-related attitudes and their implications for targeted public health interventions.

B. Narrating hesitancy: thematic analysis of ad-hoc leaders

Connecting a social network analysis (SNA) of vaccine hesitancy based on tweets with an analysis of interviews of "key leaders", or keypersons, of the antivaccination movement involves examining the interplay between online discourse patterns and the motivations, beliefs, and strategies of influential individuals within the movement. The SNA provides a macroscopic view of how vaccine-hesitant

narratives propagate, cluster, and evolve on social media platforms, highlighting key themes, influential nodes, and the flow of information. Interviews, on the other hand, offer a more detailed, qualitative insight into the motivations, tactics, and ideological underpinnings of leaders who may drive or amplify these narratives. By comparing the findings from both methods, we can trace how leaders' statements, beliefs, or strategies influence broader online communities, identifying overlaps between the leaders' key messages and the dominant themes or clusters revealed in the SNA.

The purpose of the qualitative thematic analysis is part of the research is to explore the meaning behind key-actors' hesitancy or rejection of vaccination against COVID-19, the basic moral principles that structure the logic of their behavior, and the ways this behavior is related to groups' code-orientations and subsequently to wider political and cultural issues.[9] In this framework the interviews intent to bring forward regularities in their cultural predispositions and to detect selective affinities between the various code-orientations that we assume will emerge.

1. Methodological Design

First, individual interviews were analyzed using the method of thematic analysis to create groups of respondents (Vaismoradi et al. 2016; Majumdar, 2019). Thematic analysis is a descriptive method, but at the same time it provides interpretations of code selection and theme construction. It is used for a wide range of theoretical, epistemological and methodological paradigms. The steps echo those of other methods based on coding and searching qualitative data sets to develop themes. It aims to search for and understand sets of meanings and/or practices in a data set.

Second, the responses of these emerging groups were further analyzed in terms of Weberian types of rationality and social action to highlight similarities in processes of rationalization and recurring action patterns amongst these social actors focusing on the motivations behind action (Weber, 1949; Kalberg, 1980) and were related to each other detecting selective affinities and discourse similarities. Here, the analysis draws on Alexander's and Smith's (1993) notion of culture as a structure composed of symbolic sets –the nonmaterial structure of these code orientations – to isolate the binary oppositions (sets of Good vs. Evil) to clarify the value components of these ideal types.

Third, we examined how these ideal-types are related to and are framed inside wider code-orientations (Eisenstadt, 1995) and thus to the normative and symbolic aspects of the Greek society.

Code-orientation refers to the patterns of socialization and the value systems through which individuals and groups orient their behavior and norms within a society — the underlying sets of rules, norms, and symbols that guide individuals' actions. These codes help define the nature of authority, obligations, social roles, and identities. Code-orientations are made, firstly, of the repertoire of social actions of a

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[9] Code-orientation refers to the patterns of socialization and the value systems through which individuals and groups orient their behavior and norms within a society — the underlying sets of rules, norms, and symbols that guide individuals' actions. These codes help define the nature of authority, obligations, social roles, and identities (see Eisenstadt 1995; Marangudakis with Chadjipadelis 2019).

given social actor, and, secondly, of his/her moral imperatives, or, in Weberian terms, the ultimate values, the *Vertrationalitat*, of the actor. These moral imperatives surface in discourses, such as in-depth interviews, which allow macro-actors to "make sense" of and define both the wider situation they are situated in, as well as their stance toward it.

The interview guide was based on the central thematic categories of the research project, including questions related to empirical aspects of how the subjects experienced the pandemic, the daily affairs and measures they took during the pandemic period, especially during the lockdown periods, their attitude and perception of various civil and state institutions, the role of moral principles and religiosity (if applied), as well as sources of information and dissemination in the public sphere, with an emphasis on digital social media networking.

The information obtained by the interviews was interrelated to the results of the Social Network Analysis to provide us with a deeper understanding of the five types of Vaccination Hesitancy/Rejection identified already there and verified by our qualitative analysis. In other words, while the two parts of the research happened almost simultaneously, they both identified similar types of responses.

Purposive sampling was used to conduct the research, according to which the researcher selects the participants in such a way that the participants respond to the purpose and questions of the research.[10] The criterion for selecting these particular subjects was that they were active on social media and/or involved in movements of protest against vaccination measures. Most of them participated in anti-vaccination protests either as speakers or as simple participants and shared their views through platforms such as Youtube, Facebook, Twitter, Tiktok, Telegram and personal or collective blogs.[11] A total of thirty-three (33) people responded positively to our request for an interview, seven people (either extreme right-wing, or strongly religious) refused to participate, stating among other things that we are "part of the system" and "pseudo-scientists" or that this is "contrary to the word of God", while thirty-one (31) people refused to respond to our calls. As a result, a total of thirty-three (33) face-to-face semi-structured interviews have been conducted.

Regarding demographics, of the thirty-two (32) interviewees,[12] twenty-one (21) were men and eleven (11) were women. In terms of age, two (2) were between 21-30 years old, six (5) were between 31-40 years old, ten (10) were between 41-50 years old, nine (9) were between 51 years-60 years old, four (4) were over 60 years old, while two (2) did not state their age. Regarding the educational level of the participants, one (1) was a high school graduate, three (3) were secondary school graduates, two (2)

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[10] For the method of purposive sampling cf. indicatively Bryman (2017: 463).

[11] Indicatively: https://agonasax.blogspot.com/2021/09/blog-post_53.html

https://www.facebook.com/groups/1362409737527460/?locale=el_GR

https://www.facebook.com/groups/289021999722598/?locale=el_GR

https://www.facebook.com/groups/306748516096457/?locale=el_GR

https://www.facebook.com/groups/812686632711403/?locale=el_GR

https://contradystopia.blogspot.com/

https://www.facebook.com/DOCTOR.p.ANTONIOS/?locale=el_GR

[12] One interview (code 14) was not included due to the interviewee was not wiling to mention information's.

were graduates of a Vocational Training Institute (IEK), twenty-two (22) were graduates of higher education institutions, of which five (5) were MAs and two (2) PhDs, and one (1) participant did not respond. During the interviews, all subjects mentioned their choice of vaccination. The majority of participants, specifically twenty (20) out of thirty two (32) were unvaccinated.

2. Interviews and thematic analysis

Using thematic analysis four groups of individuals emerged in line with the categorization that emerged in the Social Network's Analysis. There were two interviewees that were chosen as representatives of a more spiritual/religious orientation (who would made the "spiritualist" type of vaccine denial). Yet, in their interviews they underplayed spiritualism (yoga-oriented healing practices the one, orthodox-faith healing practices the second) focusing, the first on conspiracy theories, and the second on matters of helplessness and bafflement. Thus, they were placed accordingly in types 2 and 4.

The five groups are comprised of people who perceive the unfolding of the pandemic and the reaction to it in distinctive and internally coherent ways. In other words, the purposive sampling that we used for choosing interviewees by their public profile, proved to be wide enough to contain four out of the five types of reactions to vaccination and lockdowns identified by our Social Network Analysis:

(1) The first group, the "Medics", consists of healthcare professionals (doctors and health workers) who value science and scientific procedures, and place great value to social action in defense of scientific, professional and syndicalist principles. Six interviewees exhibit this perspective.

(2) The second group, the "Activists", consists of leftist activists, some of them health professionals, who were not willing to put aside their reservations for the COVID-19 measures to obey the "authoritarian" political and health authorities' decisions, instructions and measures. Nine interviewees exhibit this perspective.

(3) The third group, the "Conspiracists", includes people who adopt and disseminate conspiracy theories to explicate the pandemic phenomenon in most, or even, all its aspects, believing that their opposition is a form resistance to elites that wish to control humanity, its physical well-being, and its freedoms. Five interviewees exhibit this perspective.

(4) The fourth group, the "Vaccinated skeptics/regretters" express skepticism, reservations and regrets about obligatory vaccination measures and about having been vaccinated. They are ambivalent concerning vaccination being themselves vaccinated due to work and family pressure, and more important, they tend to reject the idea of being vaccinated in future time if needs be. Nine interviewees exhibit this perspective.

(5) Last, the "Anxiety-Based Refusers" are characterized by overwhelming feelings of anxiety, insecurity and helplessness and believed they have had little control over the course of events or managing their

everyday life. In effect, they decided not to be vaccinated due to fears about vaccination side effects. Three interviewees exhibit this perspective.

In detail:

The "Activists" group consists of leftist individuals who approach COVID-19 vaccine skepticism as part of a broader critique of capitalism and state control. Their opposition is rooted in principled action, emphasizing social justice and resistance to neoliberal policies. They view the government's pandemic measures as "biopolitical" control, infringing on individual liberties and fostering far-right ideologies. Many describe the measures as irrational, authoritarian, and ineffective. For them, resistance to vaccination mandates is primarily a political stance rather than a health-based decision.

These activists criticize mainstream media for spreading fear and suppressing dissenting opinions, accusing it of complicity with state propaganda. While respecting personal faith, they harbor significant animosity toward religious institutions, viewing them as entrenched in societal hierarchies. Their opposition to the state focuses on its role in supporting capitalist systems that neglect the lower classes.

Vaccines are met with skepticism due to concerns over rapid development, inadequate testing, and inconsistent scientific procedures. Some participants argue that vaccination is a matter of individual choice, while others frame it as a collective responsibility. Frustration arises from internal divisions within the leftist movement, including conflicting narratives and actions.

A central theme in their discourse is the role of capitalism in pandemic mismanagement, citing profit-driven motives, healthcare sector restructuring, and societal inequalities as systemic failures exacerbated by the crisis.

A discourse analysis of the interviews, focusing on the binary opposition of good versus evil, reveals the underlying reference system that shapes the various arguments and reasonings presented.

Good   **Evil**

The Left	The Right
Secularism	Religion
Critical thinking	Manipulation of the population
Collective action, self-organization, solidarity, companionship	Egoistic action, indifference, inaction
Anti-capitalism	Capitalism
People's rights	Impoverishment, totalitarianism
Anarchism, grass-root organization, resistance	State institutions, authority

Table 3: The Activists' binary oppositions

These bipolarities make clear the political character of the stance, which lies in the heart of the argumentation.

In terms of ideal types, the social action of this group of people stems from a very specific combination of the Weberian theoretical[13] and substantive rationality, i.e., a Marxist understanding of society combined with a substantive rationality which values personal choice and freedom, or social responsibility and the subjugation of personal choice to communal well-being. In other words, they combined an understanding of reality through the abstract concepts provided by Marxism, with a valid canon, in our case either the primacy of individual freedom, or the primacy of social responsibility as a unique standard against reality's flow of events that are measured and judged accordingly.

This "radical perspectivism", in Weberian terms, becomes operational and leads to social action in the wider framework of jacobine activism, or secular Gnosticism[14] (Tiryakian, 1996), which triggers actions of protest. However, it fails to resolve or transcend the underlying value postulates of the respective activists.

2.1. The Medics

The group of healthcare professionals expressed concerns rooted in their scientific expertise, professional experience, and collective interests. Relying on scientific literature for parameters, they distanced themselves from non-scientific sources. They specifically criticized specific procedures and measures, asserting that sufficient evidence could alter their stance. Overall, their skepticism centered on vaccine safety, efficacy, and government transparency, underscoring the importance of rational decision-making. Although members of this subgroup were vaccinated, they still argued that the vaccines were associated with side effects and proceeded to describe them to the interviewers.

These interviewees vehemently opposed compulsory vaccinations, arguing that they violate international agreements on medical ethics and necessitate individualized examinations. Furthermore, they denounced the manipulation of mainstream scientific institutions by the government and the subsequent legitimization of authoritarian measures. The suspension of unvaccinated healthcare workers was another measure they opposed.

While opposing mandatory vaccination, they engaged in collective protests focused on revoking the government's decision to suspend unvaccinated healthcare workers, something they deemed authoritarian and illegal. They also advocated for measures to bolster the public health system, such as increased healthcare personnel, expanded intensive care units, adequate medical supplies, and a strengthened primary healthcare system to alleviate hospital strain.

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[13] Regarding theoretical rationality see Kalberg (1980: ff1149)..
[14] Tiryakian (1996).

The table below presents the bipolarities that emerged from interviews with healthcare professionals. These pairs represent the values and beliefs held by these individuals, contrasting them with the evils they identified.

Good	Evil
Informed scientific knowledge	Manipulation of information
Freedom of choice	Coercion
Solidarity	Disinterest
Collective action	Egoism
Resistance	Authoritarianism
Hidden truth	Spreading misinformation

Table 4: The Medic's binary oppositions

These interviewees' moral principles are rooted in sound scientific knowledge and a belief in collective action. Their social action, in Weberian terms, stems from a unique blend of formal[15] and substantive rationality, combining adherence to health system regulations and scientific principles with a critical stance towards healthcare authorities and hierarchical structures.

This stance led to collective protests, driven by a commitment to protecting the jobs of colleagues who resisted government mandates and a dedication to their *ethos* of defending scientific conviction against vaccine policies.

2.2. Conspiracists

People who fall into this type embrace "alternative" narratives concerning the causes, the spreading, the measures, the vaccines, and both the social and the physical consequences of the pandemic and the policies around it; i.e., narratives that question and challenge the mainstream accounts, assuming that this narrative is deliberately wrong and harmful to the health and liberty of citizens, orchestrated by some sinister and nefarious world or national elite. We call the interviewees who fall in this category "conspiracists" without making any value judgment about the claims themselves – for example, in the future it could be established that the virus was indeed artificial and not transmitted directly from animals to humans.[16]

Since most of the responses of this group don't consider the "virus conspiracy" an isolated event, but they do tend to believe that most crises are manufactured and manipulated, we adopt the working hypothesis that this group does fall in the category of conspiracists, and that their conviction, and probably their numbers, have been reinforced by the magnitude of the pandemic, as it is well documented that society, or sectors of it, is more prone to believe in conspiracy theories in times of

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[15] Regarding formal rationality see Kalberg (1980: 1158).
[16] Yee et al. (2021).

uncertainty, fear, especially when combined with accumulated various societal grievances (in our case, the decade-long Greek crisis), which make people more willing to accept unconventional or anti-establishment, beliefs. Social movements have also been known to encourage the spread of conspiracy theories if and when these people possess collective resources, which they mobilize to challenge a given power center.

This group of conspiracists embodies a distinct distrust of mainstream narratives and institutions, driven by group identity and social influence. Group membership fosters a sense of belonging and reinforces shared beliefs, often against personal interests. Social influence, through close ties within the group, amplifies "plausibility bias," creating feedback loops that validate initial suspicions. Conspiracists in the study rely heavily on alternative social media for information, viewing governments, scientific institutions, and the mainstream media as propagators of hidden agendas.

These individuals believe that the pandemic, along with crises like the energy shortage and food insecurity, is artificially orchestrated to degrade and control citizens. Some interviewees claim the virus was engineered in laboratories, while others propose that vaccines contain nanotechnology for mind control or sterilization. Narratives about global elites enforcing a "New World Order" dominated discussions, with perceived threats such as cultural homogenization, mass migration, LGBTQ+ normalization, and suppression of traditional values.

This group champions nationalism, family, and individual freedoms while rejecting the Church's alignment with government measures, viewing it as a betrayal of its role as a moral refuge. They highlight inconsistencies in public health recommendations, perceiving them as manipulations. Their skepticism extends to all dominant institutions, reflecting a deeply rooted resistance to perceived authoritarianism and cultural erosion.

From the analysis of their interviews emerge the following bipolarities:

Good   **Evil**

Hidden [scientific] truth	Dominant [scientific] discourse
Individual rights	Collective compliance
Freedom of information and choice	Blind obedience
Moral integrity	Corruption
Traditional values and identities	Globalization/homogenization/atheism
Traditional order	New Order

Table 5: The Conspiracists' binary oppositions

The conspiracists are characterized by two predispositions: they show no trust in mainstream institutions, either political or scientific, not because they are undemocratic or unscientific, but because they believe that these institutions don't serve their respective principles: democracy and science.

Second, they are driven by a Gnostic sense of reality, though quite different from the Gnostic drive of the leftist activists: For them world crises are interconnected, artificial, and controlled by forces of darkness that distort all that is desirable and good.

In a Weberian framework, these people are driven by a commanding element of substantive rationality that drives thoughts and action without any qualification or counter-balancing mechanism. Convinced that the world is controlled by nefarious forces, and imagining themselves to be Jeremiahs destined to know but unable to change the course of events, they find solace in the belief that their suffering is a noble sacrifice, a testament to their unwavering integrity.

2.3. Vaccinated Skeptics/Regretters

The interviewees of this type express skepticism, reservations and regrets about vaccination and about having been vaccinated. They are betwixt and between accepting and rejecting vaccines, they were vaccinated due to pressure, and more important, they tend to reject the idea of being vaccinated in future time if needs be. They were either postponed of declined vaccination believing that it will not be effective for them or because they felt no external pressure to do so.

They perceive vaccination more as a personal choice rather than a collective responsibility, and they do not consider the potential consequences of their actions on institutions such as the healthcare system. The data shows that nine interviewees postponed their vaccination until it aligned with their personal priorities, and one, self-identifying as high-risk, chose not to be vaccinated.

Six interviewees reported being coerced into vaccination due to their employment conditions or the restrictions imposed on social activities. An interesting finding is that the vaccinated interviewees expressed ambivalent feelings toward vaccination, regretting their decision to be vaccinated and stating that they would not take any more doses. They claimed that if they could go back in time, they would choose differently, opting not to be vaccinated. They emphasized the importance of free will and choice as a fundamental individual right, viewing vaccination as a personal decision rather than a collective duty to protect society.

A central finding from the interviews was that participants either declined vaccination or expressed regret about being vaccinated due to concerns that the vaccines were still in an experimental phase with unknown long-term side effects while they expressed reservations about the Church's statements regarding the pandemic.

Analysis of their interviews doesn't bring forward any definite binary oppositions or strong convictions of moral imperatives, collective representations, and worldviews. They are animated by, in Weberian terms, practical rationality (Zweckrationalität),[17] whereas individual behavior is shaped more by pragmatic concerns and external pressures. It is behavior guided by calculated self-interest, where individuals choose actions based on their efficiency in achieving specific goals and pragmatic concerns,

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[17] Regarding practical rationality see Kalberg (1980).

rather than moral imperatives or collective worldviews; they are likely to evaluate decisions based on their immediate effectiveness in reaching these goals, rather than on ethical or ideological considerations.

Yet, practical rationality, as Weber attested, is short-sighted. Unable to formulate for themselves "[…] a valid canon; a unique standard against reality's flow of events that may be selected, measured and judged", these people are caught between competing personal and social pressures, which shape their decisions and attitudes toward vaccination. They are neither fully accepting nor fully rejecting of vaccines. Their skepticism fluctuates between distrust of the vaccine's efficacy or safety, the health system's inadequacies, and the societal or external pressures to comply with vaccination programs. This pressure-driven compliance can lead to feelings of regret, as they did not arrive at the decision voluntarily or out of personal conviction. They may feel like their autonomy was compromised, which fuels their subsequent hesitation and regret.

This vaccination regret tends to lead to resistance to further vaccination, suggesting that their stance is not simply a passive doubt, but an evolving, active rejection of continuing to engage in vaccination, especially if they do not perceive external pressure in the future. Their reluctance often stems from a combination of personal experience, perceptions of the vaccine's ineffectiveness, and doubts about necessity. They occupy a liminal position, both socially and psychologically, which results in a fragmented approach to vaccination, committing to neither side.

Their skepticism stems from distrusting institutions, medical authorities, or vaccine technologies. This is intensified by them feeling coerced into vaccination. Once they comply, the perceived lack of effectiveness or absence of negative consequences justifies their regrets, cementing their position against future vaccinations.

2.4. Anxiety-Based Refusers

These individuals experienced the COVID-19 pandemic primarily through feelings of fear, anxiety, uncertainty, and mistrust of state institutions, leading to a profound sense of personal helplessness. They described the pandemic as an extremely stressful condition, characterized by a constant struggle to manage measures-induced insecurity and doubts about the effectiveness and safety of the vaccines. These concerns, often rooted in personal experiences of side effects or deaths among acquaintances, led them to decide against vaccination. While they exhibited some conspiratorial inclinations regarding vaccine tampering, these beliefs were not deeply entrenched or central to their worldview. Rather, the possibility of conspiracy is a side-effect of their fear and uncertainty and not the other way around. More significant factor in deciding to avoid vaccination, though indirectly, could be their strong religious convictions.

The interviewees offered alternative interpretations regarding the pandemic, suggesting that the virus could have been artificially created, though without resorting to conspiracy theories of deliberate contamination of the world or other plots of world destruction.

The interviewees found the measures to be extremely stressful and expressed concerns about their irrationality and inconsistency. They criticized the government's handling of the pandemic, arguing that they failed to adequately protect the population and the healthcare system. The interviewees cited the psychological impacts of the pandemic as a result of fear, pressure and stressed feelings, claiming that everything was intentional and premeditated.

All three interviewees had strong links with the Greek Church. What is particularly interesting in this context, is that they all three of them were attracted to the anti-rational, anti-scientific, mystical aspects (e.g., prophecies, miracles, etc.) of the Orthodox Church, rather than the support of the Church authorities to mandatory vaccination, or even their endorsement of universal vaccination.

The interviews of the three members of the "Anxiety-Based Refusers", similarly to the previous group, do not to bring forward any definite binary oppositions between good and evil, any strong convictions of moral imperatives, collective representations, or worldviews – in other words, no signs of substantive rationality, even though all three of them keep a very close relationship with the Church.

Rather, these individuals exhibit patterns of reflection, rationalization and action that could be described as a combination of affectual action and practical rationality. This is to say that the experience of religion -to the extent that they are influenced by the religious experience- is not a source of strong moral stances, but rather it operates as an emotional force; actually, a force of disorientation and confusion.

Thus, the three individuals' decision to avoid vaccination, and their general mistrust of state institutions, largely driven by fear, anxiety, and uncertainty about the pandemic, corresponds to affectual action, since they are driven by emotive responses, rather than by rational calculation or adherence to values. It is the primacy of emotions, particularly fear and helplessness, that their conspiratorial inclinations are secondary to their emotional state; the fear and uncertainty are the primary drivers of their behavior.

Although their decisions are largely driven by affectual action, there is also an element of practical rationality (*Zweckrationalität*) at play. Their choice to avoid vaccination is not based on a deep ideological opposition or strong conspiratorial worldview, but rather on a personal cost-benefit analysis shaped by fear and uncertainty. In other words, they make pragmatic decisions based on their perception of risks—fueled by personal experiences with side effects or deaths among acquaintances. It is a form of practical rationality in that they are acting to protect themselves from what they perceive as immediate dangers (the vaccine), and this decision is heavily influenced by their emotional state.

3. Merging Clusters, Ideal Types and Protest Groups

Due to structural differences of Social Networks and in-depth interviews, our qualitative analysis of respondents led to a classification different from the one we identified in Social Network Analysis. Thus, before we proceed, we need to relate the two classifications to each other.

The Medics group represents the Skeptical Rationalist ideal type. These individuals, often healthcare professionals, base their hesitation on critical analysis and scientific skepticism. The Rebel cluster includes groups like Activists and Conspiracists, the former clearly associated with the ideal type of Conspiracists opposed to vaccination as they are widely opposed to policies that they perceive as authoritarian. Conspiracists engage a distinct mode of resistance that is rooted on mistrust of elite power. This group's main characteristic is their extreme mistrust of the government and mainstream narratives, considering the COVID-19 epidemic is a manufactured crisis. Their conceptual framework supports their hesitancy to vaccinations, which is driven by their tendency to reject what they consider as top-down manipulation. This correlation highlights the emotional aspects of vaccination refusal, emphasizing how conspiracy theories give those who feel marginalized or powerless a sense of identity and proactive stance.

Furthermore, Anxiety-Based Refusers and Vaccinated Skeptics/Regretters indicate how individual experiences and emotions impact vaccine skepticism. Within the Individualist cluster, the Vaccinated Skeptics correspond to the Procrastinator ideal type, reflecting their ambivalence over vaccination as a result of opposing factors and influences. However, the Anxiety-Based Refusers are associated with the Collectivist cluster, corresponding to the Fatalist and the Spiritualist ideal type. Their opposition is an outcome of rooted fears about the adverse consequences of vaccines, which are amplified by a sense of powerlessness and worry. Anti-vaccination attitudes reflect a range of mental, emotional, and practical reasons by classifying these groups to particular clusters and ideal kinds.

In a nutshell, the basic parameters that define the five groups of vaccine hesitancy we have identified, could be depicted in the following table (Table 6).

	The Medics	The Activists	The Conspiracists	The Vaccinated Skeptics/Regretters	The Anxiety-Based Refusers
Valid Canon	The primacy of scientific integrity	The primacy of individual and collective dignity	A fundamental suspicion of large-scale crises as accidents	Personal well-being	Personal well-being
Values and principles	Ethical responsibility to resist authoritarianism while upholding the values of open science	Ethical responsibility to resist authoritarianism while upholding the values of freedom of speech	Distrust of the system and belief in personal freedoms and worth	Autonomy, skepticism, and social pressure	Safety, control, and emotional security
Worldview	The primacy of scientific principles and procedures over unethical bureaucracies	The primacy of individual and collective autonomy over capitalism	A heroic struggle against nefarious enemies of humanity	Primacy of individual autonomy in a complex and erratic world	Primacy of individual safety in a dangerous world

Social Network Analysis Ideal-type Correspondence	Skeptical Rationalist	Rebel	Rebel	Procrastinator	Fatalist/Spiritualist

Table 6: The basic parameters that define the five groups of vaccine hesitancy

Yet, these groups, as ideal types, they need not being isolated from each other. Due to overlapping concerns and themes, and parallel cultural predispositions, they do develop eclectic affinities with one another, though not of the same intensity and similar proximation.

First, Activists are connected to Medics by the primacy of *substantive rationality*, their strong moral stance, as defenders of a rational and methodical approaching of the complex experimentation-testing-development-distribution of vaccines, as well as of adherence to scientific definitions and procedures concerning the containment and eradication of the pandemic. And since substantive rationality is directly linked to means-end calculation, they both took the protest stand against the government. Thus, it is not an accident that even the membership of the two groups in some cases overlap, with medical personnel also being members of the activists' repertoire. Yet, they do belong to two explicitly different groups as they are separated by formal and theoretical rationalities respectively.

Then, *practical rationality* connects Anxiety-Based Refusers with Vaccinated skeptics/Regretters. However, while the latter are solely driven by practical rationality, the Anxiety-Based Refusers is predominantly driven by *affectual action*, with practical rationality playing a secondary role. Interestingly, while practical rationality apparently orients both groups towards avoiding vaccination (due to their grave concerns on the effectiveness of the vaccines), its combination with affectual action resulted in refusal to be vaccinated, whereas pure practical rationality has led to an ambivalent attitude, initially promoting vaccination but subsequently fostering regret. In a sense, high emotions reenforce determination while pure practical calculation weakens it.

Last, the Conspiracists are partially connected to Anxiety-Based Refusers via their common *affectual action* component. And while their affectual action is not similar -the prior animated by the thrill of unfolding the riddle, the conspiracy, and the latter by their intense religion-based anxiety- they do share disbelief of the dominant scientific/vaccination paradigm or discourse. In other words, affectual action, not being rational (in the Weberian perspective) leads them both to negate the dominant scientific discourse – and it is this negation that shapes their own discourse.

In essence, there is evidence suggesting that, within specific contexts and subject areas, Weberian types of rational thinking and of types of social acting, despite their individual nuances, often converge (see Diagram 1).
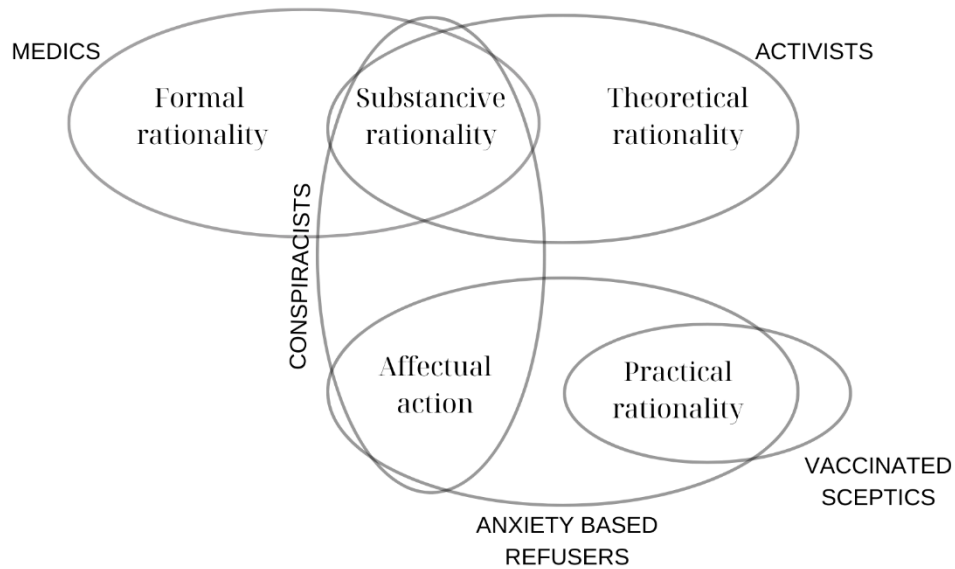
Diagram 1: Affinities of Weberian types of rationality and of social action

However, this similarity doesn't necessarily translate into identical discourses. The outcome of any particular group discourse is primarily influenced by the unique interplay of rationality types, social actions, and the discourses' repertoire, as outlined in Table 7 below.

	Medics	Activists	Conspiracists	Vaccinated Skeptics/Regretters	Anxiety-Based Refusers
Faith protects			✓		✓
Regret for the Church's support of the government's measures			✓	✓	✓
Collective Rights	✓	✓			
Individual Rights	✓	✓	✓	✓	✓
Against lockdown	✓	✓	✓	✓	✓
Against mandatory vaccination	✓	✓	✓	✓	✓
Inadequate tests of the vaccines			✓		✓
Vaccines' side effects			✓	✓	✓
Not following proper scientific procedures	✓		✓		✓

Inadequate health infrastructures	✓	✓		✓	
The COVID-19 is a common virus			✓		
Artificiality of the virus			✓		✓
Dominant Mass Media monophony		✓	✓		
Anxiety and fear				✓	✓

Table 7: Composition of the five groups' discursive themes.

Combining the content of both Diagram 1 and Table 7 is easy to detect (a) that the Conspiracists play a key-role both cognitively and discursively to shaping the whole protest complex. This central position is not accidental. While the Medics are focused on their professional involvement, the Activists on the wider effects and complexities of capitalism and authoritarian political structures and behavior, and the Vaccinated Skeptics/Regretters and Anxiety-Based Refusers on the effects of the pandemic on their personal life, the Conspiracists focus entirely on examining systematically and methodically the phenomenon of pandemic and its treatment, analyzing each and every component of it on a global scale, thus offering to all other particular groups ready-made means to question and to refute it. In a sense, they are the heart and soul of the anti-vaccination movement; (b) we can also detect that the subject-matters all five groups agree upon are Individual Rights, Opposition to lockdowns, and Opposition to mandatory vaccination – in other words what they consider to be infringements to fundamental civil rights.

4. Concluding Remarks

In conclusion, the analysis highlights the intricate dynamics of vaccine hesitancy, revealing a nuanced landscape where clusters of social groups and ideal types interact and overlap in complex ways. The five identified groups—Medics, Activists, Conspiracists, Vaccinated Skeptics/Regretters, and Anxiety-Based Refusers—each embody distinct but interconnected worldviews, values, and forms of rationality. These distinctions are rooted in their interpretations of science, governance, and individual autonomy, as well as their emotional and experiential responses to the pandemic and its management. Despite their differences, these groups share a common resistance to perceived authoritarianism and a unifying concern for individual rights, opposition to lockdowns, and mandatory vaccination.

The Conspiracists, in particular, emerge as a central force, shaping the cognitive and discursive framework of the broader protest movement. Their methodical critique of the pandemic's management resonates across other groups, offering a shared vocabulary for questioning mainstream narratives. Meanwhile, the interplay of rationalities—scientific skepticism, practical reasoning, and affectual action—reveals both convergences and tensions that underpin their collective dissent.

Ultimately, these findings underscore the importance of understanding the multidimensional nature of vaccine hesitancy, where structural, emotional, and ideological factors coalesce, shaping public discourse and resistance in ways that defy simplistic categorization.

C. Survey and Quantitative Analysis

Building on the qualitative insights into the anti-vaccination movement in Greece, this section delves into a quantitative survey to examine the broader patterns and demographic underpinnings of these attitudes. By analyzing survey data, we aim to validate and expand the findings of the qualitative analysis, exploring how opposition to lockdowns, and hesitancy and resistance to mandatory vaccination resonate across different social groups. Employing advanced multivariate methods, the survey investigates the interplay of political, emotional, and ideological factors shaping vaccine hesitancy. This quantitative approach provides a comprehensive framework for understanding the movement's societal dynamics and its broader implications.

This analysis utilizes a combination of Hierarchical Cluster Analysis (HCA) and Multiple Correspondence Analysis (MCA) in a two-step process to comprehensively examine respondents' attitudes and behaviors regarding democracy, vaccination, and their information sources during the COVID-19 pandemic. These methods are particularly suited to datasets containing variables with multiple levels, offering robust insights into complex social phenomena.

We begin with the application of Correspondence Analysis to reduce and structure the information from a diverse set of variables. Correspondence Analysis identifies dimensions that represent relationships within the data, effectively visualizing associations between variables and their categories. These dimensions act as explanatory axes, enabling a deeper understanding of the underlying dynamics. By applying HCA to the coordinates of the data on these dimensions, we group individuals into clusters based on their response patterns. This process provides a powerful means of identifying distinct respondent profiles linked to specific variable levels, offering an interpretable structure of the population under examination.

The sample consists of 1,220 respondents across Greece, gathered through online and telephone surveys using a structured questionnaire. The survey captures political attitudes, views on democracy, and opinions about vaccination and COVID-19-related information sources. The respondents' behaviors and perceptions are analyzed systematically using this dual-step process to identify patterns and associations within the data.

In the final stages, the study incorporates a Conjoint Analysis experiment to explore respondents' decision-making regarding COVID-19-related behaviors. This method highlights how different attributes influence preferences and identifies key drivers behind respondents' attitudes. Cross-tabulation

analyses further contextualize vaccination attitudes in relation to demographic and political variables, enabling detailed characterization of specific groups.

The methodological framework combines HCA and MCA to maximize the analytical potential of the dataset. The stepwise approach ensures a thorough understanding of respondents' behavior while maintaining the flexibility to explore complex relationships within the data.

Step 1: Hierarchical Cluster Analysis (HCA)

HCA serves as the initial step, partitioning respondents into distinct clusters based on response patterns. The process identifies groups with shared behavioral profiles, with the output being a cluster membership variable that characterizes each respondent's association with a specific typology. The chi-square metric determines the clusters, while the empirical criterion of changes in between-cluster inertia guides the selection of the optimal number of clusters. By analyzing the contribution of each variable to cluster formation, the study reveals typologies that reflect diverse behavioral tendencies and ideologies.

Step 2: Multiple Correspondence Analysis (MCA)

Building on the clusters generated in the first step, MCA is applied to the Burt table, which represents the categorical relationships within the dataset. MCA extracts dimensions that explain the internal inertia between respondents, capturing the structural dynamics of their responses. The dimensions highlight critical associations among variables, effectively creating a semantic map that visualizes relationships and behavioral structures. The Benzecri criterion is employed to select significant dimensions, using thresholds for COR and CTR values to ensure robustness.

To enhance interpretability, the coordinates of variable categories on the extracted dimensions are clustered again using HCA. This secondary clustering links clusters to specific variable categories, deepening the understanding of the relationships between individual characteristics and their broader social and ideological contexts. The combined outputs provide a comprehensive behavioral and attitudinal framework, offering insights into the complex interplay of factors shaping respondents' perspectives.

The study incorporates Conjoint Analysis to examine respondents' preferences concerning COVID-19-related attributes. This statistical method evaluates decision-making by presenting respondents with a series of scenarios that vary across key attributes, such as trust in experts, adherence to measures, fear of illness, vaccination status, and concern for others. Respondents rank these scenarios according to their preferences, allowing the analysis to assess the relative importance of each attribute. By designing eight scenarios, the study systematically explores how different factors influence respondents' attitudes and behaviors, providing nuanced insights into the decision-making process.

In the final stage, cross-tabulation analyses are conducted to investigate the relationship between vaccination attitudes and demographic or political variables. These tests enable the identification of specific groups characterized by their attitudes toward vaccination. By combining the outputs of HCA, MCA, and Conjoint Analysis, the study creates a rich narrative of the population's behavioral tendencies and ideological orientations, emphasizing the complexity of the phenomena under investigation.

The survey results offer a comprehensive exploration of societal attitudes and behaviors during the COVID-19 pandemic, integrating demographic factors, ideological orientations, emotional responses, and vaccination-related behaviors. By examining a wide range of variables and their interactions, the findings highlight the complex and multifaceted nature of public opinion in Greece during this period of unprecedented social and health challenges.

The demographic characteristics of the respondents serve as a foundation for interpreting their attitudes and behaviors (table 3.1). The gender distribution (D1) was nearly balanced, with females constituting 52.79% of the sample and males 47.21%. This proportionality provided a representative basis for comparing attitudes and trust levels across genders. Women generally demonstrated higher levels of institutional trust and stronger adherence to vaccination recommendations, reflecting broader gender-based trends in health compliance.

The age distribution (D2) reveals distinct generational attitudes. Younger respondents, particularly those born between 2000 and 2004 (35.25%), represent a significant portion of the sample, with their perspectives shaped by digital information consumption and contemporary educational experiences. Older respondents, particularly those born before 1969 (23.28%), display higher levels of traditionalism and stronger adherence to public health measures, including vaccination. Middle-aged respondents (1970–1989, 19.26%) represented a transitional group, bridging generational divides and exhibiting mixed attitudes toward collectivism and individualism.

Education (D3) emerged as a significant predictor of attitudes and behaviors. A majority of respondents (51.07%) holds a university degree, while 7.87% had advanced degrees (MA or PhD). This high level of educational attainment correlated strongly with trust in scientific institutions, engagement in political discourse, and adherence to public health measures. Income distribution (D4) adds another layer of complexity, with most respondents earning between €10,000 and €30,000 annually (indeed, the average salary in Greece). This economic backdrop influences their perceptions of government policies and trust in institutions, reflecting the socio-economic challenges faced by middle-income households in Greece.

Employment status (D5) and self-identified social class (D6) provided further insights. Most respondents (59.75%) are employed, while 13.85% are unemployed, and 16.31% are inactive (retirees or homemakers). "Middle-class" identification dominates (75%) the sample, reflecting Greece's socio-economic self-perception. However, differences emerge across classes: the working-class respondents (18.77%) and rural-identifying respondents (2.05%) display varying levels of trust in institutions and

adherence to public health measures, highlighting the interplay between socio-economic status and public attitudes.

D1.GENDER:	Code	%
Male	1.	47.21%
Female	2.	52.79%
D2. AGE (Year of Birth):	[_][_][_][_]	
1	1949-1969	23.28%
2	1970-1989	19.26%
3	1990-1999	22.21%
4	2000-2004	35.25%
D3. Educational level *(the highest one):*		
Up to 3rd year of High School or equivalent Technical School	1.	1.23%
Graduated from Lyceum/IEK	2.	39.43%
Graduated from University	3.	51.07%
MA/PhD	4.	7.87%
No Answer	**5.**	0.41%
D4. Annual Household income:		
0- 10000 Euro	1.	14.26%
10000 – 15000 Euro	2.	21.23%
15000 – 30000 Euro	3.	22.05%
Over of 30000 Euro	4.	15.41%
No Answer	5.	27.05%
D5. Occupational status:		
Employed	1.	59.75%
Unemployed	2.	13.85%

Not active	3.		16.31%
No answer	4.		10.08%
D6. Social class			
Higher	1		4.18%
Middle	2		75.00%
Working	3		18.77%
Rural	4		2.05%

Table 8.1 Gender, Age, Educational level, Annual Household income, Occupational status and Social class

An examination of perceived closeness to institutions and groups (Table 8.A.1 below) reveals significant variability. The Scientific Community is the most trusted entity, with 51.97% of respondents expressing "very much" closeness and 42.54% indicating "a lot." This widespread trust underscors the pivotal role of science during the pandemic, reflecting its credibility and effectiveness in addressing public health challenges. In stark contrast, the Church faces polarized opinions, with only 8.11% expressing "very much" closeness and 35.9% reporting "not at all" closeness.

Similarly, trust in the Army is moderately favorable, with 14.43% expressing "very much" closeness and 42.7% indicating "a lot." However, 12.87% reported "not at all" closeness, reflecting skepticism toward authoritarian/enforcement institutions. Parliamentary Democracy elicits ambivalence, with 10.16% expressing strong closeness and 28.77% rejecting it.

Grassroots and community-oriented entities, such as "The People and Their Struggles," (a leftist slogan) resonated strongly, with 56.56% of respondents expressing closeness. This support underscores the appeal of bottom-up initiatives during the crisis. Conversely, skepticism toward social movements (38.69% "not at all" closeness) suggests doubt regarding their intention and efficacy. Self-acceptance and autonomy (or even egotism) also plays a significant role, with 42.38% expressing closeness to "Myself" and 74.26% feeling strongly aligned with "Those who share my beliefs." The last highlights the centrality of sameness and/or shared ideology in shaping trust and closeness.

E1		Very much	A lot	A little	Not at all	Not answer
E1.1	The Church	8.11%	23.20%	30.57%	35.90%	2.21%
E1.2	The Army	14.43%	42.70%	27.79%	12.87%	2.21%
E1.3	The Parliamentary Democracy	10.16%	38.77%	22.21%	28.77%	0.08%
E1.4	The People and their struggles	15.41%	41.15%	30.16%	8.85%	4.43%

E1.5	My fellow citizens	1.15%	30.08%	58.77%	7.38%	2.62%
E1.6	The working class	8.77%	45.33%	32.54%	9.67%	3.69%
E1.7	The social movements	4.92%	29.26%	23.85%	38.69%	3.28%
E1.8	The Scientific community	51.97%	42.54%	5.00%	0.49%	
E1.9	The Police	0.82%	34.34%	31.64%	31.89%	1.31%
E1.10	Myself	42.38%	54.02%	3.52%		0.08%
E1.11	Those who have the same beliefs as me	16.89%	74.26%	6.72%	1.64%	0.49%

Table 8.A.1 [Question E1]. "How close to you are each one of the items below?"

Factor Analysis identified four axes of polarization among these variables, juxtaposing progressive and collectivity-oriented entities against traditional and enforcement-based institutions. The axes offered a multidimensional framework for analyzing ideological orientations, revealing clear divisions between collectivist-progressive and conservative-traditional values.

The survey examines attitudes toward various institutions and ideas (Table 8.B.1), capturing the ideological diversity of the sample. Science is overwhelmingly supported, with 62.87% expressing "strongly positive" views and no negative ones. This contrasts sharply with religion, which elicits mixed opinions: 22.05% expressed "strongly positive" views, while 16.23% held "strongly negative" ones. Political institutions, including Parliament and Political Parties, are faced with significant skepticism, with 36.23% expressing negative opinions toward the latter. Globalization and Capitalism also drew mixed responses. While 19.92% expressed negative opinions toward Globalization, Capitalism faced stronger criticism, with 22.21% reporting negative stances. Conversely, social values like Feminism (64.42% positive or strongly positive) and LGBTQ+ rights (59.18%) reflected growing societal approval.

E4		Strongly Positive	Positive	Neither/Nor	Negative	Strongly Negative
E4.1	Religion	22.05%	30.00%	21.23%	10.49%	16.23%
E4.2	European Union	14.43%	47.87%	20.08%	14.59%	3.03%
E4.3	Parliament	5.66%	23.28%	36.56%	17.46%	17.05%
E4.4	Parties	2.13%	3.28%	33.93%	36.23%	24.43%
E4.5	Globalization	4.84%	24.34%	39.59%	19.92%	11.31%
E4.6	Socialism	2.30%	27.54%	47.13%	17.87%	5.16%
E4.7	Science	62.87%	35.57%	1.56%		
E4.8	Capitalism	4.84%	27.38%	32.05%	22.21%	13.52%
E4.9	Vaccination	42.05%	30.57%	19.26%	1.97%	6.15%
E4.10	NATO	9.34%	20.98%	42.05%	11.56%	16.07%

E4.11	WHO	24.02%	39.92%	20.16%	8.20%	7.70%
E4.12	Involvement	20.33%	43.69%	18.28%	10.57%	7.13%
E4.13	UN	15.33%	34.43%	30.74%	14.02%	5.49%
E4.14	Free Markets	15.57%	30.90%	33.20%	16.39%	3.93%
E4.15	The renewable sources of energy	48.03%	31.97%	8.61%	10.90%	0.49%
E4.16	LGTBQ	34.10%	25.08%	18.52%	12.62%	9.67%
E4.17	Feminism	28.93%	35.49%	20.82%	11.48%	3.28%

Table 8.B.1 [Question E4]. In general, what is your opinion on the following [1 Positive-5 Negative]:

Factor Analysis reveals **four main axes of polarization**, highlighting tensions between modernist-progressive and traditionalist-conservative perspectives. Respondents were grouped into six ideological profiles, ranging from liberal-right and liberal-left to conservative and technocratic orientations. These clusters underscored the coexistence of traditionalist, progressive, and centrist ideologies within the sample, offering a nuanced view of public opinion.

The vaccination landscape among respondents reveals high adherence to public health measures, with 85% of the population reporting full vaccination (E6). Partial vaccination was reported by 12.13%, while only 2.87% remained unvaccinated. Among the unvaccinated, skepticism and mistrust dominated their reasoning. Specifically, 85.71% of the unvaccinated expressed disbelief in the severity of the virus, and 71.43% attributed vaccination efforts to "nefarious purposes," such as hidden agendas or social control. Additional reasons include fear of side effects (28.57%) and distrust in government and medical authorities (14.29%), while no respondents cited religious objections. These findings underscore the influence of conspiracy theories and mistrust as central drivers of vaccine hesitancy.

The correlation between vaccination status and attitudes toward vaccination reveals clear divisions. Fully vaccinated individuals demonstrated overwhelmingly positive attitudes, with 46.87% expressing a "strongly positive" stance and 32.4% reporting "positive" perceptions. Conversely, all unvaccinated respondents expressed "strongly negative" views, reflecting entrenched opposition. Among partially vaccinated individuals, attitudes were more nuanced, with 50% expressing neutrality and the remainder divided between positive (43.24%) and negative (6.76%) opinions. These findings suggest that barriers such as access or concerns about side effects may contribute to incomplete vaccination.

The demographic composition of the sample played a pivotal role in shaping vaccination behaviors and attitudes. Gender differences emerged as a significant factor, with 91.8% of women fully vaccinated compared to 77.4% of men. Women were more likely to perceive vaccination as protective (73.6%) than men (57.1%). However, both genders expressed similar rates of opposition to obligatory vaccination for all (approximately 40%). Moreover, correlations between demographic variables and vaccination behaviors revealed clear associations. Higher vaccination rates were consistently linked to older age, higher education, and greater social class Trust in institutions and positive emotional states during the

pandemic also correlated strongly with higher vaccination rates. Conversely, lower vaccination rates were associated with political apathy, marginal trust in institutions, and negative emotional states.

(a) Age significantly influences vaccination rates, with older respondents born before 1969 demonstrating the highest levels of full vaccination (98.2%). This group also exhibit the strongest support for the necessity of universal vaccination (62.0%) and perceive it as primarily protective (77.5%). Younger respondents, particularly those born after 1990, are less likely to be vaccinated and more skeptical about its necessity, reflecting generational divides in health behaviors.

(b) Education levels are consistently associated with higher vaccination rates and positive attitudes toward vaccination. Respondents with advanced degrees (MA/PhD) reported a 100% full vaccination rate, while those with lower levels of education are more likely to question the necessity of vaccination. Similarly, social class (Table 8.I.4) reveals disparities, with higher social classes reporting the highest vaccination rates (98.0%) and the strongest support for vaccination as protective (72.5%).

(c) Trust in institutions and information sources emerge as critical determinants of vaccination behavior. Respondents who express trust in institutional systems, such as the Scientific Community and governmental agencies, exhibit full vaccination rates exceeding 94.7%. Conversely, those with marginal trust in institutions are less vaccinated and more likely to view vaccination as a limitation of individual freedoms.

(d) Information sources significantly influence attitudes. Those informed by official sources (91.9%) or personal doctors (93.0%) report higher vaccination rates and more positive perceptions of vaccination's purpose. In contrast, reliance on social media (36.4%) or disengagement from information sources altogether (5.9%) correlate with lower vaccination rates and heightened skepticism.

(e) Political orientation is a key factor in vaccination behavior and attitudes. The "Right" political spectrum group demonstrates the highest vaccination rates (97.8%) and the strongest association of vaccination with protection (79.6%). While the "Left" also report high vaccination rates, they are more divided on its necessity. Political interest further amplifies these trends: individuals with strong political interest exhibit the highest vaccination rates (96.7%) and overwhelmingly support vaccination as protective (92.2%).

(f) Political mobilization adds another layer of complexity. Respondents actively participating in demonstrations or addressing authorities directly have higher vaccination rates and view vaccination as necessary and protective. In contrast, politically apathetic individuals are less vaccinated and more likely to question vaccination's motives.

The pandemic elicited a wide range of emotional responses, as detailed in Tables 8.F.1 and 8.G.1. During the pandemic, negative emotions such as anxiety (61.6%) and apprehension (81.1%) were dominant. Sorrow (38.0%), loneliness (31.5%), and anger (28.4%) were also prevalent, while positive emotions like

joy (4.4%) and relief (5.4%) were rare. **Factor Analysis identified four emotional axes**, contrasting positive and negative feelings and highlighting the emotional toll of the crisis. Post-pandemic emotional shifts were significant. Relief (61.4%) and joy (52.9%) became dominant emotions, reflecting optimism and recovery. However, lingering anxiety (21.2%) and fear (19.2%) persist among some respondents, indicating that the psychological impact of the pandemic was not fully resolved. Comparisons between pre- and post-pandemic emotional states revealed a dramatic reduction in negative emotions and a rise in positive feelings, demonstrating collective emotional resilience.

Finally, conjoint analysis assesses the relative importance of variables influencing vaccination decisions. Trust in government and experts emerges as the most significant factor (33.32%), with strong trust yielding the highest positive utility (+0.673) and distrust yielding equally negative utility (-0.673). Fear of getting sick ranked second (30.95%), highlighting its motivational role in protective behaviors. Other factors, such as concern for the social environment (11.68%) and adherence to COVID-19 measures (16.56%), played moderate roles. Vaccination status, surprisingly, was the least influential variable (7.49%), suggesting that broader trust and fear dynamics outweighed direct vaccination advocacy in shaping decisions.

Summarizing the key findings a substantial 85% of respondents are fully vaccinated, aligning closely with national data. Positive attitudes toward vaccination correlate strongly with higher vaccination rates, while skepticism or resistance is primarily driven by distrust in institutions and perceptions of nefarious motives behind public health measures. Demographics play a pivotal role in shaping vaccination behaviors. Women are more likely than men to be vaccinated, often citing population protection as a motivating factor. Older age groups, especially those born before 1969, show higher vaccination rates and a stronger belief in the necessity of universal vaccination. Education and social class exhibit less variation in vaccination rates but positively correlate with the perceived necessity of vaccination.

Political orientation and engagement further differentiate attitudes. Those identifying with leftist or rightist ideologies and those highly engaged in public matters are more likely to be vaccinated and view vaccination as protective. Conversely, individuals with marginal political involvement or apathy are more skeptical, often associating vaccination with nefarious purposes. Information sources and trust are pivotal determinants of vaccination attitudes. Respondents informed by official sources or their personal doctor show the highest vaccination rates and positive perceptions of vaccination's protective intent. In contrast, reliance on less credible or informal sources correlates with skepticism and lower vaccination rates.

Emotional and personal satisfaction levels also significantly influence behaviors. Positive feelings during and after the pandemic correlate with higher vaccination rates and perceptions of its necessity and protective intent. In contrast, dissatisfaction and negative emotions are associated with vaccine hesitancy and conspiracy-driven beliefs. The extended survey manages and in-depth exploratory

analysis into vaccination attitudes, behaviors, and their connections to demographic, political, and emotional variables.

	%		%
A. Anxiety	61.6%	E. Anger	28.4%
B. Apprehension	81.1%	F. Sorrow	38.0%
C. Joy	4.4%	G. Loneliness	31.5%
D. Relief	5.4%	H. Carelessness	9.3%

Table 8.F.1 [Question F1]. What emotions possessed you during the pandemic? Mark those of the following that apply to you:

A. Joy	52.9%	E. Relief	61.4%
B. Enthusiasm	34.3%	F. Melancholy	4.4%
C. Anxiety	21.2%	G. Discomfort	7.7%
D. Fear	19.2%	H. Eagerness	29.4%

Table 3.G.1 [Question F5]. Which of the following feelings would describe your return to "normality"? Mark all which of the following apply for you.

Conclusions

The survey and quantitative analysis of the anti-vaccination movement in Greece reveal a complex interplay of demographic, political, emotional, and ideological factors influencing vaccine attitudes and behaviors. Key insights include:

(a) A significant majority of respondents (85%) are fully vaccinated, indicating general adherence to public health measures. However, vaccine hesitancy persists among certain groups, primarily driven by mistrust in institutions and perceptions of hidden agendas. This aligns with findings (Krastev et al. 2023) that institutional trust is a distinct construct related to vaccine acceptance.

(b) As it has been indicated (Rruong et al. 2022) older individuals, women, and those with higher education levels exhibit higher vaccination rates, underscoring the role of generational attitudes, health compliance trends, and educational background in fostering trust in vaccination. Conversely, younger and less-educated groups display greater skepticism, consistent with studies identifying demographic factors such as age and education influencing vaccine hesitancy

(c) Trust in scientific and governmental institutions correlates strongly with positive vaccination attitudes and behaviors. In contrast, reliance on social media or informal sources is associated with skepticism and lower vaccination rates, highlighting the critical role of credible information. This is supported by research indicating that institutional trust may moderate the effect of misinformation on vaccine acceptance (Chen X. et al. 2022).

(d) The pandemic elicited intense negative emotions, such as anxiety and apprehension, which significantly influenced attitudes toward public health measures. Post-pandemic shifts toward optimism and relief indicate emotional resilience, though lingering fear and mistrust remain among some respondents. This reflects the complex emotional determinants of vaccination behavior (Konstantinou et al. 2024).

(e) Vaccination behaviors vary along political lines, with politically engaged individuals, especially those on the right and left ideological spectrums, showing higher vaccination rates and support for public health measures. In contrast, apathetic individuals are more likely to resist vaccination, often citing nefarious motives. This is in line with studies highlighting the influence of political orientation on vaccine hesitancy (Sasse et al. 2024).

(f) A small but vocal unvaccinated segment aligns with conspiracy-driven narratives, viewing the pandemic as a manufactured crisis and vaccination as a tool of control. These beliefs are central to vaccine hesitancy in Greece, consistent with findings that conspiracy beliefs significantly impact vaccine acceptance (Achore et al. 2024; Kowalska-Duplaga et al. 2023; van Prooijen et al. 2023).

Overall, the survey highlights the complexity of public attitudes toward vaccination, shaped by a combination of personal, societal, and systemic factors. Tailored communication strategies and trust-building initiatives are essential to address these challenges effectively.

D. Discussion and Concluding Remarks: From Social divisions to social integration?

As mentioned previously, Eisenstadt's code-orientations complement Weber's ideal-types by offering a more nuanced and culturally embedded understanding of how societies develop and legitimize and how they challenge different forms of social organization and authority. It constitutes an additional layer of historical and civilizational specificity that allows us to relate the discursive and action repertoires of

these groups to more fundamental organizational and symbolic structures that go beyond their particular condition and group boundaries.

In other words, these voices of protest need to be placed in a Greek context. Protests against closedowns and compulsory vaccination took place in most countries, and for similar reasons. Yet, in each country, these reasons were connected to wider symbolic and organizational aspects of these societies mobilizing particular reasonings, collective representations and organizational means. It is only through this contextualization that we could develop anti-pandemic policies or related crises country-specific that will be inclusive and universal.

In the Greek cultural framework, there are several underlying cultural predispositions that influence these diverse groups' hesitancy or outright hostility toward COVID-19 vaccines:

1. Skepticism Toward Authority and Institutions

Greece's long history of geopolitical instability, political corruption, social upheavals and economic crises (notably the 2010 financial crisis and austerity measures) has cultivated a certain level of distance and distrust toward central authorities. It resulted in many Greeks being skeptical toward official rules, instructions and recommendations. The given hostility of parties of the opposition to any measures been taken by any government offer ready-made justification to any skepticism and suspicion of the civil society to measures undertaken by the government. Almost half of our nationwide sample, and all of the groups that emerged in our investigation, are united in their suspicion and distrust over the measures the government took during the pandemic.

2. Cultural Emphasis on Autonomy and Individualism

Greek culture values individual autonomy and personal choice in the form of individual autonomy above and beyond social rules and norms – a phenomenon that social literature has labelled "anarchic individualism" (Marangudakis, 2019) - an anti-social individualism which prioritizes individual freedom over social responsibility. In this context, mandates or strong recommendations around vaccinations were seen by many as infringing upon this personal freedom. This sentiment is especially prevalent among leftist activists, who view state-imposed health measures as violating personal and collectivity rights. Indeed, Conspiracists, Regretters and Refusers challenged vaccination measures as an assertion of control over their own timelines and decisions.

3. Religion

The Orthodox Church has had a rather complex relationship with vaccination campaigns, with the Church officials strongly supporting the measures (less so the closing down of churches during the pandemic) while many clergy members, acting in their own accord, propagated skepticism and rejection of vaccination declaring that holy relics, holy communion and the like to be better means for protection against infection. Moreover, and overlooked, is the might of "practical religiosity", that is the ways

laypeople experience liturgy, sacraments and church going, irrespective of the guidance provided by the Church officials or clergy members. As the responses of the three Refusers indicate (and there are many of this kind of believers in Greece) belief in miracles, divine protection and healing, spiritual purity, or obeying the "natural order" of things which vaccination disturbs, became a powerful religious anti-vaccination force independent of Church control.

4. Collective Trauma and Feelings of Vulnerability

Greeks have experienced significant hardship during recent crises, including the financial meltdown and the prolonged period of austerity. These experiences have cultivated feelings of helplessness and skepticism toward solutions imposed by the political authorities and elites or external bodies (e.g., the EU, foreign pharmaceutical companies). Those who feel desperate and unprotected see the vaccine as another aspect of a system that has previously failed them, expressing a deep-rooted sense of vulnerability. The same people were also influenced by the psychological toll of prior crises, where trust in institutions was repeatedly tested and often eroded, leading to a reluctance to embrace new solutions like the vaccine.

5. Value of Social Identity, Solidarity and Ideology

This is particularly significant for social groups whose members are strongly attached to them, like health professional and leftist collectivities. Leftist activists were ambivalent toward vaccination. On the one hand, as secularists who believe in science, saw vaccines as the obvious solution to the crisis. Yet, as staunch enemies of capitalist modernity, they became ambivalent toward this kind of vaccination criticizing the process of vaccine production when they were perceived to benefit multinational corporations at the expense of public welfare. Moreover, as they prioritize individual freedom and collective solidarity, they became increasingly frustrated by their inability to express, even perform, autonomy and spontaneity. In a similar vein, medical practitioners' reaction toward compulsory vaccination of all medical personnel, clearly reflects a sense of professional identity and group dynamic which obviously reinforced their conviction and determination to resist unvoluntary vaccination.

6. Role of Alternative Knowledge and Conspiracy Theories

Greece has also a rich tradition of alternative interpretations of power dynamics and playouts, often rooted in real experiences of political manipulation and, indeed, plots and intrigues. Conspiracy theories thrive in this environment, where distrust of authority and external forces is widespread. Furthermore, conspiracists in Greece, reflecting a deep-seated suspicion of foreign influences, reject vaccines as part of a broader belief that powerful entities are manipulating the pandemic for profit and control of the Greeks.

7. Clientelism

Yet, we strongly believe that the main cause of vaccine hesitancy, ambivalence, and refusal, as it is shown in the quantitative analysis of our nationwide sample where anti-vaccination stance was stronger amongst the ranks of the politically detached, is clientelism – a factor deeply embedded in Greek social and political structures. Clientelism, as a generalized means to access power (goods, services, or protection) for political loyalty and support, between a patron (who holds power and resources) and clients (who depend on the patron) is not restricted to the event of this peculiar interaction. Instead, its effects are profound, affecting all aspects of society and governance. In our case, clientelism provides an arch-cause of all kinds of reaction against pandemic measures.

First, widespread clientelism undermines the development of universalistic norms, which are critical to the functioning of modern bureaucratic and legal-rational institutions. Instead of equal application of rules and laws, decision-making and resource distribution become based on particularistic ties between patrons and clients. It diminishes the legitimacy of institutions, as citizens come to perceive that success and access to resources depend on personal connections rather than merit or fairness. Second, clientelism contributes to the fragmentation of society along patron-client networks. Rather than uniting under common national or civic goals, groups align themselves with specific patrons or factions, leading to a division of loyalty and a weakening of collective solidarity. This fragmentation reinforces social inequalities and prevents the development of a strong civic culture based on shared norms and values. Social relations become increasingly defined by hierarchical dependencies, as clients rely on patrons for protection, economic benefits, or political favors. Third, clientelism leads to systemic corruption, as patrons use their access to state resources to reward loyal clients, bypassing formal procedures and regulations. This type of corruption is institutionalized, making it difficult to root out, as it becomes embedded in the way the political and economic systems operate. Corruption further erodes public trust in institutions, as it creates an expectation that personal ties and bribes are necessary to navigate state systems or receive benefits. In a nutshell, clientelism erodes civil trust and civic responsibility, fragmenting the political community and cultivating anomy, anarchic individualism, and compartmentalization of social classes and sectors of society.

All of the above suggest that those who challenge the dominant paradigm of copping with the pandemic are not deviant personalities, some kind of nutcases as they are usually portrayed, intrinsically irrational and dangerous to society. Rather, they are main-stream individuals who operate in ways similar to the rest involved in cost-benefit analysis of the condition, based on their personal experience, their family condition and social networks, and follow principles and norms common to all –ranging from suspicion of pharmaceutical companies and of military experiments, to divine intervention and miracles. In other words, their "deviance" from accepted procedures is a matter of weighing rather than otherness.

As the quantitative part of our study confirms a substantial part of the Greek society did not follow government's instruction wholeheartedly but with reservations voicing various concerns and frustrations not unlike the ones that we recorded in our interviews. Of course, someone could say that, overall, this was an inconsequential hesitancy since the vast majority of Greeks eventually were

vaccinated – and that there will always be a small minority which for various reasons will reject vaccination.

Yet, grudges and resentment, such as against the government forcing people to be vaccinated, take their toll. While citizens who harbor resentment may continue their everyday life, there could be long-lasting social consequences. For example, those who feel resentment toward government mandates could, and to an extend they have already, aligned with political movements or parties that emphasize individual freedoms over collective responsibility. It could also lead to social fragmentation, where individuals avoid or sever relationships with friends, family, or communities that hold opposing views on government interventions. And while the core issue may be about government mandates, the resentment could extend to scientific experts or medical authorities who publicly supported the vaccination campaigns. Last, holding a grudge over vaccination mandates can cause long-term psychological effects, such as increased stress, anger, or frustration. This can affect relationships, work environments, and overall well-being.

In all, resentment breads weakening of social bonds and trust to the government making it harder to address future challenges that require coordinated responses, such as pandemics, natural disasters, or economic crises.

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