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LSE THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

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Katerina Sideri[1] and Eleni Chanania[2]

ABSTRACT

In this article, we adopt a hermeneutics lens to show that governments and publics' perceptions and experiences of a policy situation such as COVID-19 vaccine mandates for hesitant healthcare workers (HCWs) constitute multiple new realities or multiple problems. Based on thematic analysis of Ministry of Health press conferences and 74 interviews with HCWs, we show that HCWs and government's understanding of the proper balance between professional responsibility and autonomy were starkly different as they understand risk in a completely different way. We argue that a case of difference of perception, especially when rooted in deep distrust towards science institutions, should be treated in a different manner than a case of moral failing on the part of professionals who fail to adhere to the principle of 'do no harm.' Rather than mandates, persuasion is the best strategy so that the laudable goal of increasing vaccination of HCWs and the population alike is achieved. Institutions that make use of local expertise, engage civil society and consider themselves a critical friend to government could serve as useful models for rethinking the role of science advice systems in Europe and beyond.

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1. Introduction

The World Health Organization (WHO) declared the novel coronavirus (COVID-19) outbreak a global pandemic in March 2020. Novel vaccines were given regulatory authorization in December 2020 and vaccination of populations was promoted as the primary way to end restrictive measures around the world. Vaccine hesitancy, defined as delay in acceptance or refusal of vaccination despite availability of vaccination services (MacDonald & SAGE Working Group on Vaccine Hesitancy 2015), was identified as a major obstacle to achieving this goal. It is notable that a significant percentage of healthcare workers (HCWs) prove to be hesitant. Maltezou and colleagues (2022) report that as of August 2021, the median full vaccination rates among HCWs in 17 European countries was 79%, (with exceptional differences between countries) and similarly, 30% of HCWs in US hospitals were still unvaccinated as of September 2021. In Greece, the vaccination rate of health personnel (medical, nursing, laboratory staff) in public and private health care facilities was 70% (National Committee on Bioethics and Technoethics 2021).

Various governments, such as Italy, France, Greece (Law 4820/2021 article 205), Australia, and Canada, reacted aggressively taking harsh measures, such as mandates stipulating dismissing HCW from work unless vaccinated. The underlying ethical argument rests on the principle of 'do no harm,' as HCWs have an ethical obligation not to harm their patients. Yet, any restrictions on their freedom of choice (via mandates) need to be necessary and proportionate and depends on local context and conditions. In times of crisis such as the COVID-19 pandemic, increased morbidity and pressure on health system capacity could legitimize mandates, yet these ought not to undermine trust in political institutions, and any trade-offs need to be investigated empirically (WHO 2021b) and take into account HCWs 'burnout' in overburdened public health systems (WHO 2019).[3] Overlooking ethical arguments (and the complexity of trade-offs), mandates were often presented in the media as a necessity, the rationale being that refusal to vaccinate manifests various moral failings such

[3] According to the WHO (2019) 'mandatory vaccination policies that require unvaccinated health workers to stay at home or require vaccination as a condition of employment or hospital privileges might have significant negative consequences for already overburdened health systems. Policies that require unvaccinated health workers to be transferred to settings where the risk is lower might have similar consequences, as they might remove critical health workers from settings that badly need health human resources, such as congregate living settings where care is provided to older adults. Additionally, it may be difficult to distinguish high and low-risk settings where there is widespread community transmission of SARS-CoV-2.'

as lack of solidarity, disrespect towards medical institutions (such as national vaccination committees) and ignorance of science, as we discuss extensively in the article.

Yet, there is a long literature showing that mandates are counterproductive (Parker et al. 2021). Moreover, vaccination policies are highly political. The choice with regard to vaccinate or not is influenced by factors such as trust in government, ideas about government overreach and individual liberty, distrust towards pharmaceutical companies and negative or positive lived experiences within people's communities (Goldenberg 2021; Gennaro, 2021; (Holzmann-Littigetal, 2021).[4] Recognizing the systemic element that shapes the politics of hesitancy, the UK government changed their original decision to make vaccination mandatory for HCWs after realizing that it was mainly healthcare workers of color under 30 with a history of distrust towards the political system who refused to vaccinate and mandates could only make the problem worse (Reuters 2022). It is in the same spirit that the WHO (2021a) warns against the adoption of coercive measures while recognizing vaccine hesitancy as one of the major health challenges of our times.

In Greece vaccine mandates were introduced for HCW on 1st of September 2021 and as a result around 6.500 HCWs were initially suspended. (Bouloutza 2022). Government action resulted in rallies and protests to change the decision and allow HCWs to return to work (Reuters 2021). In the following months many HCWs vaccinated so as not to lose their jobs and by December 2022 there were 2.100 unvaccinated HCWs (Bouloutza, 2022). Mandates

[4] There is a wealth of studies discussing reasons for hesitancy of HCWs. In a survey of 4500 health care workers conducted in 2021 during the second pandemic wave in Germany by Holzmann-Littig and colleagues, increased distrust of vaccines was prominent. Participants believed that pharmaceutical companies were more interested in financial profit than in the safety of their products. More specifically, in this survey 92% had either been vaccinated or were going to be vaccinated. Higher rates of hesitation were observed in younger age groups, outpatient or medical centres and dental practices. Lack of trust in decision-makers, political leadership, the pharmaceutical industry and by extension the approval process and speed of vaccine development are associated with refusal to vaccinate against Covid-19. Other reasons include a history of side effects with conventional vaccines, lack of information, lack of confidence in vaccination and fear of long-term and short-term side effects. Finally, the reluctance of family, friends and colleagues influences respondents' attitudes towards vaccination (Holzmann-Littigetal, 2021). In a survey conducted in Italy in 2021 by Gennaro and colleagues, among 1723 health workers directly facing the effects of the pandemic only 67% reported being willing to be vaccinated. The survey was conducted early in the second wave. The main reasons for hesitation were the questionable efficacy of the vaccine and fear of side effects. Participants claimed that their reluctance was reinforced by the lack of reliable data and by debate reported by the media. The vast majority of respondents distrusted the restrictive measures against Covid-19. Due to the low level of trust in pharmaceutical companies and the authorities controlling them, 58% of respondents did not want to be vaccinated. These concerns only relate to Covid-19 vaccines and do not apply to vaccination in general. In contrast, positive attitudes towards vaccination were associated with close contact with people belonging to high-risk categories (Gennaro, 2021).

ended in November 2022 when the Council of State (top administrative court) decided that while such measures could be lawfully enacted and enforced during a period of crisis, the principle of proportionality dictates that they are revoked once crisis is over (Mandrou 2022).

In this article, we show that public controversy with regard to vaccine mandates for HCWs was portrayed by the government and media as one of opposing interests (science and anti-science), hesitant HCWs were ignorant of vaccine science and as such potentially spreading both the virus and misinformation. Illustrative is the statement by the Minister of Health that '*unvaccinated health workers have no place in the health system, because they do not believe in science*' (Kathimerini 2022). HCWs were identified as a threat to key public health policies to vaccinate the population and contain the virus. The reason is that they are expected to function as important nods in a network of professionals spreading correct information about vaccines (Larson et al., 2015) especially in times of crisis. From the government's point of view, hesitancy denotes that they believe in conspiracy theories and as such they show greater skepticism towards science and they are less willing to adopt behaviors promoting public health (worse, they may even spread wrong information to patients). The problem is abundance of misinformation and the solution is targeting this group with information campaigns, so that hesitant HCWs reflect upon it and hopefully correct faulty beliefs. Theoretically, this approach can be explained by group polarization theories (Sunstein (2000; 2018) and Talisse (2019; 2021)) and cultural cognition theory (Kahan (2012; 2016), which are based on the idea that there are certain psychological mechanisms that lead people to form false beliefs. We argue that these psychological mechanisms are not necessarily faulty and harms can be mitigated by reshaping the function of institutions in democracies to build trust (on these points also see Benson 2023).

As Hilgartner and colleagues (2021) argue in a recent publication in *Science*, elitism of science feeds into distrust towards those making decisions and creates fertile ground for alternative facts and conspiracy theories. These 'alternative theories' essentially seek to reframe issues and concerns, they relocate the focus of blame on elites. In other words, it is distrust towards elites (and the elitism of science) that provides the fertile ground for conspiracy theories. Policy makers need to listen more carefully to public(s) rather than simply reject their protest as unscientific (although the latter may very well be the case). Trust in institutions should be the starting point of the discussion over vaccine hesitancy. This line of thinking aligns with the

work of scholars such as Jasanoff (2005) and Hilgartner (2000) who have demonstrated that science advice and regulatory science is found at a delicate position between asserting facts and making policy.

Working within the tradition of science and technology studies (STS) we take the view that people draw upon personal associations to enact and express civic concern with an issue (see Wynne 1992), the enactment of public concern involves the articulation of threats to actors' way of life, personal values, relationships, lived experiences, broader societal values and institutional structures (Paul et al., 2022; Bijker 2017). We take the view that public controversies may go beyond disagreements over interpretations of a single problem (the correct science and information versus misinformation). Instead, we should try to understand how governments and publics' perceptions and experiences of a policy situation constitute multiple new realities or multiple problems (Hilgartner, Hurlbut & Jasanoff 2021; Wagenaar 2007; Yanov 1995; Dryzeck 1982; Pinch & Bijker 1984). For a government, the problem of vaccination can be perceived as a problem for saving a crumbling health system and protecting vulnerable populations or it could be perceived as part of a plan to open the economy. For HCWs vaccine hesitancy may be perceived as a continuation of past practices (HCWs are hesitant with respect to the flu jab too) and an expression of distrust stemming from adverse conditions of work in times of reduced public spending or systemic discrimination towards minorities or even distrust towards medical hierarchies given the troubling past of medicine with communities of color and the disabled. It depends on context of complex human social, economic, and political systems (Larson, Lin & Goble 2022) and history, but the point here is that such perceptions shape how actors construct risk and feed into HCWs and government's understanding of the proper balance between professional responsibility and autonomy. Rather than a problem of information, hesitancy becomes a problem of democracy. This line of thinking urges us to reconsider the institutional design of technical democracies.

It follows that actors' diverse 'worlds' need to be understood so that better policies are crafted. Mandates increased the numbers of vaccinated HCWs in Greece and from a pure instrumentalist perspective it could be argued that the measure was successful (Reporter 2021). Yet, as Politis and colleagues (2023) argue '*Decision and policy makers should be aware of this important proportion of HCWs who are opposed to vaccine mandates. This is of particular importance, as vaccination mandates have been found to be associated with the*

aggravation of distrust in officials, the depletion of healthcare facilities, political polarization, and decreased intent to receive both the COVID-19 vaccine and unrelated vaccines, such as the chickenpox vaccine.'

With the anti-vaccine movement on the rise, often tied to antisystemic voices, one should be mindful of the long-term effects of mandates. In this article, we take the view that a good policy is one which accommodates as many different perspectives as possible and requires eliciting information in an open and interactive process (Pamuk 2021; Anderson 2006, Bohman 2006; Dewey 1982). It is possible that HCWs perceive risk in a drastically different way from government's official account (Larson, Lin and Goble 2022). Understanding whether it is a case of difference of perception (rather than a moral failing on the part of professionals who fail to adhere to the principle of 'do no harm') is crucial so that government decides whether to go ahead with mandates or choose persuasion so that the laudable goal of increasing vaccination of HCWs and the population alike is achieved. Eliciting information about HCWs perceptions is crucial so that governments engage in balancing trade-offs with regard to diverse benefits and harms produced from policies.

The article is structured as follows: In the first main section, we discuss the Greek government's narrative and we then seek to connect it to other texts and the science advice system so as to give an hermeneutic interpretation of the government's position with regard to HCWs vaccine hesitancy and the reasons for which they decided in favor of mandates. In the second main section of the paper, we make sense of HCWs' position and the individual and social factors that influence their perception(s) of risk. In the final section we reflect on the science advice system and how it can be improved to become a more inclusive and trustworthy system of science advice in Greece and beyond.

1.1. Method/Methodology

In this article we deploy the methodological tools of hermeneutic analysis to makes sense of both HCWs' and the Greek government's positions. Following Lejano (2006) and Lejano and Leong (2012) we argue that hermeneutics offers novel tools to policy analysts, to understand policy controversies in a way that takes into account diversity of perspectives, which in turn feeds into better public policy responses (Lejano 2006, Lejano & Leong 2012). Constructing actors' narratives is key. According to Fisher (1985), to be able to narrate we must be capable of apprehending and interpreting the world of human activities as a story,

with content, involving different actors, and to grasp the events in terms of patterns. Yet, hermeneutics requires that we beyond speakers' utterances. Texts such as interviews and archives of press conferences provide evidence that can be further analyzed to understand meaning particular to a policy problem that remains concealed or misrepresented. For Gadamer (2004) the interpreter needs to *re-awaken the text* so that they truly make sense of what has been written. Yet, the analyst needs to understand *the hermeneutic circle* (Gadamer 2004). Beyond the narrator's intentions and in order to understand the meaning of the text *itself*, we need to follow cues or references as they take us away to other distant yet related texts (Lejano & Leong 2012). It can be past government reports on related issues, professional practices or codes of conduct, it can even be objects such as buildings or architecture. The text can also be linked to institutions; they have narratives too. Following Hilgartner (2020) we see statements and opinions as reinforcing or challenging the system of science advice put in place to build credibility, and thereby structuring relations between experts and their audiences.

We used thematic analysis (Braun & Clarke 2006) and situational analysis (Clarke, Friese & Washburn 2018) to make sense of the regular weekly press conferences held by government during the pandemic. These press conferences were televised and transcripts are stored on government's official sites offering us a unique opportunity to use content analysis to derive themes and government's primary narrative. After putting together the main narrative construction based on primary text, which is based on various themes and subthemes (for example, HCWs transmit the virus to patients and colleagues) we then find links to other texts that help elucidate meaning, such as reports showing that many HCWs did not even vaccinate against the flu (something that had already caught the attention of the Ministry of Health before COVID-19) and reports showing that the public health system is on the brink of collapse and it is still running as a result of heroic attendance of HCWs.

Moreover, we conducted 74 interviews with hesitant HCWs. We divided them into two groups. The first group consisted of 36 unvaccinated HCWs who were suspended. The second group consisted of 38 vaccinated HCWs who were vaccinated after mandates have been announced.[5] 67 people came from Athens and 7 from 3 provincial cities of Greece. The

[5] Specifically: Group A consisted of 6 doctors, 8 members of nursing staff, 5 administrative employees, 3 social workers, 2 bearers, 1 physiotherapist, 1 dietician, 1 medical laboratory technologist, 1 public health supervisor, 1 rescue worker, 2 IT staff, 1 IT technician, 2 therapists, 1 sociologist, 1 laboratory assistant. Group B consisted

interviews were semi-structured and lasted from fifteen minutes to one hour. HCWs were informed in advance of the purpose of the study, that the interview would be recorded and they signed an informed consent document. Before the interview, they were given detailed explanation of how anonymity is preserved and personal data protected so as to create a climate of trust. Arranging interviews was a painstaking process as hesitant healthcare workers were very cautious and suspicious. The first participants came from the professional contacts of the researcher Eleni Chanania (EC). Then the participants put the researcher in contact with their colleagues in other health units. Moreover, EC attended a meeting of the coordinating body of HCWs against mandates in order to inform them of the research and ask permission to forward the request for interviews to members. EC also attended various events organized by them so as to inform HCWs about the study and request an interview. We asked questions such as reasons for hesitancy, reasons for vaccinating, attitudes towards the flu vaccine, whether they take protective measures, if they feel at risk, if they trust science advisors, how they were informed about Covid-19, who should be vaccinated. Interviews were transcribed and analysed using thematic analysis so as to construct the primary narrative of HCWs position. We compared the two groups (unvaccinated and vaccinated after mandates were announced) and we found various differences (for example in attitudes towards the flu vaccine and reasons for vaccinating). After putting together, the main narrative construction based on various themes and subthemes (for example, bodily autonomy trumps public health as both vaccinated and unvaccinated transmit the virus) we then deployed hermeneutic analysis to link statements to distant texts such as reports on natural immunity and working conditions inside hospitals in deb-stricken Greece. Finally, the two co-authors discussed the overall coherence and whether it feeds into a convincing storyline. The whole process took place over 14 months, from November 2022 to December 2023.

of 2 doctors, 12 members of nursing staff, 1 physiotherapist, 17 administrative employees, 4 technicians, 1 cook and 1 midwife. We conducted 65 interviews in person and 9 by phone.

2. Primary Interpretation of the position of the Greek government

The national vaccination plan was announced on 18.11.2020. The president (Professor of Pediatrics Maria Theodoridou) of the Greek National Vaccination Committee (NVC) together with other members of the NVC, members of the National Experts Committee on Public Health (NECPH) and the General Secretary of Primary Health started presented briefings to an audience of journalists two or three times a week on national television. These briefings were dedicated to informing the public about the vaccination rollout, prioritization, and international or national developments. It was in July 2021 that the Greek government announced mandates for unvaccinated HCWs to commence on 1 of September 2021, at a time when numbers of COVID-19 patients at hospitals had started rising. During these briefings (before and after the introduction of mandates for HCWs) experts and ministers presented information on percentage of vaccinated citizens, numbers of deaths, numbers of people infected with the virus, numbers of ICU beds, pressure to the public health system. Thematic analysis of briefings and statements of members of expert committees and ministers on popular press reveals a number of recurring themes with respect to unvaccinated HCWs. Following Lejano and Leong (2012) we summarize recurring themes in Table 1 and we provide excerpts that illustrate the contents of the themes. These themes are useful in that they help us construct the primary narrative of the government.

In our analysis we found three main themes: follow the science (experts' and doctors' opinion), protect the social good of public health/vulnerable populations and combat misinformation. We identify various recurring sub-themes such as, unvaccinated HCWSs transmit the virus, HCWs do not respect established hierarchies (regulatory, scientific, professional), trust the experts and science advice institutions, protect the vulnerable, pressure to the public health system. The initial narrative of the policy issue is constructed from thematic analysis, but what about meanings that go beyond these declarations? As Lejano and Leong (2012) ask, do these statements mean what they say or are issues pushed to the background? In our case, one more reason to ask these questions and try to look beyond the primary text lies in government's assertion that they followed the recommendations of the National Bioethics and Technoethics committee (BTC). Yet, this is partly accurate.

True, the government asked the BTC to produce a recommendation. The BTC is a committee staffed with internationally acclaimed ethicists, whose mission as stated on their

website is '*public dialogue to address the need to develop technology in line with societal needs*. 'The question they were asked to answer was: '*since the pandemic continues to threaten and cost human lives and since there are approved vaccines that are safe and effective, it is morally acceptable to introduce mandates in the case of unvaccinated HCWs*? We note that first, they had to respond to a very specific question framed in a very particular way by the government. Second, safety concerns or perceptions of safety were not part of what the specific committee had to give advice on, the government only wanted to know more about the ethical and legal aspects of mandates. Third, the BTC was asked to give ethical advice and not engage in a broad analysis of democratic purposes and goals. In light of the above limitations, the BTC still crafted a careful analysis that took into account the conflict between different values (autonomy, duty to protect the vulnerable and the principle of 'do no harm') and noted that compulsory vaccination is both morally and legally controversial. It is notable (as a good practice) that the BTC had previously organized meetings with stakeholders and various healthcare worker associations (i.e. doctors, nurses, midwives) to elicit their views, following the European Groups of Ethics' and other ethics committees' practice and around the world. The BTC explained that any balancing between conflicting values needs to be conducted in light of evidence with regard to effectiveness and safety, the infectiousness rate in the general population, the number of cases, the occupancy rate of ICU beds, the vaccination coverage rate in the general population, and cited evidence showing that a single dose of some COVID-19 vaccines reduces transmission in the close environment by 38%-49% and that viral load is reduced in vaccinated individuals 14 after the first dose, suggesting lower transmission. They then recommended an escalating approach (including education and information campaigns) with mandates being the *last resort measure*. It is notable that they published their opinion on their website along with the names of those who participated in drafting the opinion, in a laudable effort to be transparent, while very few other advisory committees around the world engaged in similar open practices (see discussion by McKee *et al.,* 2022).

We mentioned earlier that it was partly true that the government followed the advice of the BTC. Indeed, what the government took from this report is that controversial mandates can be lawful (as long as they apply to particular groups of people and for a particular period of time in light of the principle of proportionality). Nowhere in the televised briefings we

discussed earlier was there explicit mention of conflict of values making decisions hard. Moreover, the advice was sought narrowly on ethical and legal balancing, dissenting views and unvaccinated healthcare workers' opinions were nowhere present in consultations.

Table 1

PRIMARY THEMES	SAMPLE TEXT
Follow scientific/ethical advice/protection of vulnerable citizens	'*In parallel with campaigns to persuade people to vaccinate and following the recommendation of the Bioethics and Technoethics Committee, the Government decided to make activities related to the protection of the health of our vulnerable citizens compulsory*.' Communication by the Government Spokesperson Aristotle Pelonis on 15/07/2021 (Hellenic Republic 2021)
Protection of vulnerable citizens	*'We need to protect all citizens, vaccinated and unvaccinated'* Announcements by the Minister of Health Thanos Plevris and the President of the National Public Health Organization (EODY) Theoklis Zaoutis, Press Conference 03.11.2021 / (Plevris & Zaoutis 2021)
The social good of public health	[Response to a question on whether measures such as vaccine certificates divide society]. '*..they contribute to social cohesion and public health, since the response to the pandemic concerns the whole of society. … Only vaccinated citizens are safe*.' Briefing of accredited editors by the Deputy Minister of Civil Protection and Crisis Management Nikos Hardalias, the Professor of Pediatric Infectious Diseases Vana Papaevangelou and the Assistant Professor of Epidemiology Gikas Magorkinis 15/07/2021 (Communication Ministry of Health, 2021b)
Follow the science (2)	'*It is not a matter of my medical opinion or that of MrsTheodoridou [president of the National Vaccination Committee (NVC)] or another colleague, there are institutions [which make decisions]. As in our own country, [there is] the NVC, but also internationally. So not everyone can practice medicine as they wish. Only charlatans do this*.' General Secretary of Primary Health Care and coordinator of the national vaccination plan Mario Themistokleous speaking during a briefing (with the President of the National Vaccination Committee Maria Theodoridou) on 26.07.2021 (Communication Ministry of Health, 2021c)
Follow the science (3)	'*The FDA authorized the vaccine today, the EMA had already authorized it in the first place. There is not much to say in terms of the science*.' General Secretary of Primary Health Care and coordinator of the national vaccination plan Mario Themistokleous speaking during a briefing (with the President of the National Vaccination Committee Maria Theodoridou) on 23.08.2021 (Communication Ministry of Health, 2021e)
They do not believe in science	'*People who don't believe in science they belong outside the NHS. ... As health minister I could not take the burden of an oncology patient getting infected by an unvaccinated doctor*.' Minister of Health T. Plevris reported on 12.10.2022 in Kathimerini (Kathimerini 2022)

3. Hermeneutic Interpretation

3.1. Hesitancy towards the flu vaccine and presenteism

The previous analysis allowed us to reconstruct the primary narrative upon which mandates have been largely based. But we need to also reveal the hidden issues not addressed or stressed in the primary interpretation. Hermeneutics helps us engage in this task. Following Lejano and Leong (2012), in our thematic analysis of press conferences on the national vaccination plan, we also found references that stand out and call for a deeper analysis to understand their meaning. This can be undertaken by means of finding links with other policy texts drafted in the past on loosely related issues to COVID-19 and vaccine hesitancy. We found the following references that stand out:

During a communication held on 19.08.2021 a member of the National Experts Committee on Public Health (NECPH) Charalambos Gogos said, '*And finally, as a health doctor. I would like to make an appeal to health workers, doctors, nurses and other health care workers to rush to get vaccinated* (Communication Ministry of Health 2O21d).

Yet in a communication on the National COVID-19 Vaccination Coverage Plan on 23.08.2021, the President of the NVC said '*Everyone's right to be vaccinated or not vaccinated except for health professionals and very specific categories of others where their own actions affect the health of others* (Communication Ministry of Health 2O21e)

On 13.9.2021 Papaeuaggelou (Professor of Pediatrics and Member of the Committee of Experts and Member of the National Vaccination Commission) stated: '*[it]is crucial to prevent transmission of the virus in work and family environment, but also to avoid the weakening of the health system if a large number of health workers become ill.*' In the same briefing Gkikas Magorkinis (Member, the National Experts Committee on Public Health (NECPH) said: '*I think the key thing they are looking at is what is the burden on the health system over the last two to three months to make that decision*.' (Communication Ministry of Health 2O21f)

We first note a contradiction. One member of the National Vaccination Committee (NVC) says that we need to '*make an appeal'* to HCWs while the President of the NVC says *'Everyone's right is to be vaccinated or not vaccinated except for health professionals'* Second, we note that two members stress the weakening of the public health system as a crucial factor

of any decision. This is a consequentialist approach (rather than one that stresses duties and professional responsibility) and provides crucial context to understand decisions. We need to better understand these statements and to this effect we need to find links with other texts.

A crucial subtext (text connected to the primate text) concerns past attitudes of HCWs with respect to the flu jab. A second subtext refers to the daunting reality of the Greek public health system being on the verge of collapse. To begin with the first, for the first time in 2019, the Ministry of Health decided to give an award to health units that achieved the highest vaccination coverage rates nationwide and established the Coordinating Committee on Seasonal Flu Vaccination for Health Professionals to identify, plan and implement best practices to increase vaccination coverage of health service personnel against influenza. In a separate report dedicated on vaccination against seasonal flu by the Ministry of Health (EODY 2019), it is stated that health care settings have a duty to protect their patients and staff and note that a significant percentage of HCWs remain unvaccinated (in Greece, 41,6 %of HCWs remained unvaccinated against seasonal flu see Alasmari, Larson & Karafillakis 2022) and vaccination of HCWs needs to be secured. The document mentions that vaccination coverage of health care workers remains low globally, with the exception of the United States where mandatory influenza vaccination policies have been implemented over the last decade with excellent results.

In a different document released by the Autonomous Department for Legislative Initiative, Parliamentary Scrutiny and Codification of the Ministry of Health published on 30.04.2019 in response to a question (number 5641/14-2-2019) submitted to Greek Parliament by MP Mr. K. Bargiotas on the need for mandatory vaccination of health workers, the Ministry of Health answered that

'The issue of mandatory vaccination of health service staff has been repeatedly discussed by both the National Vaccination Committee of the Ministry of Health and the Coordination Committee for the Vaccination of Health Professionals for Seasonal Influenza. Both Committees consider that there is a need to develop a legal/institutional framework for vaccination of health service personnel and that mandatory vaccination of health service personnel could be a requirement for enrolment in health schools or for employment in the health system (acceptance of mandatory vaccination upon recruitment into the health system).'

We see that both the Ministry of Health and the National Vaccination Committee were already concerned with the problem of unvaccinated HCWs prior to the pandemic and they were already considering legislation making vaccination against seasonal flu mandatory or de facto mandatory by means of making it a requirement to attend university and seek employment. A publication (with the lead author employed by the Directorate of Research, Studies and Documentation, Greek National Public Health Organization) further sheds light on the reasons for which unvaccinated HCWs pose a threat (Maltezou et al. 2022).The authors explain that HCWs have long been recognized as high risk group both for acquisition of several vaccine-preventable diseases (such as the flu or childhood disease such as measles) and transmission of virus to patients (they cite various studies around the world including the case of a misdiagnosed physician with measles who was traced as the source of an outbreak of 35 cases at an Italian hospital few years ago). Worse, the authors refer to 'presenteeism,' defined as working while being ill, which, they argue is common among HCWs, even in high-risk settings. They refer to an influenza outbreak that occurred in an oncology unit, and two out of three infected HCWs continued to work despite being symptomatic. The reasons were 'sense of duty' (56%) and 'viewing their illness as too minor to pose risk to others (44%). The authors further cite a survey in the US which found that 183 out of 414 (41.4%) HCWs with influenza or similar illness continued to work for a median of three days, giving reasons such as 'still being able to perform job duties' and 'not feeling bad enough to miss work.' Finally, they cite a survey, again in the US, showing that 92% of HCWs with influenza worked while ill, even those working in a transplant unit. In a different study, with the same lead author (employed by the Directorate of Research, Studies and Documentation, Greek National Public Health Organization) the authors estimated costs associated with the first wave of COVID-19 in Greece as a result of HCWs falling ill, amounting to €1.73 million. They further note that 15% of HCWs with COVID-19 in their study reported presenteeism (for a mean duration of 2.2 days) (Maltezou et al.2021)

These numbers make more sense if we also account for the daunting reality of a Public Health System on the brink of collapse. The following long excerpt is illustrative.

'*it is striking that Greece with the highest per capita rate of licensed specialist physicians among EU Member States (6.2 per 1000 population) has the fourth lowest rate of health personnel employed in hospitals .. The imposed freeze on hiring drove many doctors to*

seek work abroad or to private practice. The Greek hospital-based doctors work daily under 'emergency' conditions …. while this might be seen as extraordinary for other countries, it is 'normal' in Greece, perhaps placing the medical staff in Greece in a better position in the current pandemic crisis. Their experience of working under strenuous and very difficult conditions, with low pay and insufficient resources at their disposal, ironically might have contributed to effective management and the successful containment of cases, in conjunction with the imposed national lockdown (Giannopoulou & Tsobanoglou 2020).

The above texts show that rather than ignorance of science and a war in misinformation the arguments that influenced the decision to impose mandates can be interpreted as a desperate effort to keep the national health service from breaking down and protect vulnerable populations. Mandates also make sense in light of previous recommendations of the vaccination committee with regard to this matter. Statistics with regard to HCWs attitudes in relation to other vaccines (flu) and presenteeism are crucial, as HCWs are defined as a high-risk group both for transmitting the virus and catching the virus.

But this discussion would be incomplete without accounting for the key role played in the overall handling of the pandemic by Prof Tsiodras and the newly established National Experts Committee on Public Health (NECPH). A key theme that emerged in our thematic analysis is 'protection of vulnerable' and references such as '*We need to protect all citizens, vaccinated and unvaccinated*' (Plevris & Zaoutis. 2021) were common. In the following section we discuss subtexts that further elucidate this theme.

3.2. Protect the vulnerable

One day before the first officially reported case of Covid-19 in Greece, the chief science advisor of the Greek government and member of the NVC Prof Tsiodras, stated that the virus poses a risk for the elderly and that it behaves like a pandemic (Tsiodras 2020), which led to legislation on Covid-19 in Greece (Government Gazette 2020). Weeks before other countries, Greece adopted draconian measures and a full lockdown, which was later hailed as having averted innumerable deaths. During this first phase, government raised their percentage of popularity.

On 21/03/2020 in a press conference Prof Tsiodras said*: 'I have been told by someone I know, a very important scientist, one of the world-renowned people, that we make too much fuss about a few old and chronically ill citizens. The answer I give internally within myself and*

I leave it to your judgment is that the miracle of medical science in 2020 is the prolongation of survival of these individuals, many of whom are our mothers and fathers, grandmothers and grandfathers. The answer is that we honor everyone, we respect everyone, we protect everyone, but most of all we protect them. We cannot exist or have an identity without them (Communication Ministry of Health 2020a)

There is indeed a big percentage of elderly people in Greece, a society that values elderly people, who are also in close contact with their children and grandchildren. Tsiodras gained trust of the public, a modest family man, father of seven children, 94 percent viewed him in a positive way in April 2020.[6] The New York Times hailed him as a hero and France's Le Figaro said he is the reason why Greece avoided many more deaths. In an interview, the Israeli historian and philosopher Yuval Noah Harari said: '*If I had to choose between Greece and the United States for who should be leading the world now, giving us a plan of action, I would definitely choose Greece*.' New York Times reported interviewees saying that 'He's one of us.' 'He's humble, modest and caring, but he's also undeniably a top expert (Gridneff 2020).' Prof Tsiodras can be seen as a case of 'ethical scientist' (see discussion by Douglas (2009) contrasting ethical with neutral advice) and he set the pace for a type of science advice particular to Greece which we will term the '*view from inside* (Jasanoff 2011) putting compassion and protection of vulnerable populations squarely into statements about what needs to be done. Apparently, his voice resonated with a society where suffering during the economic crisis in Greece encouraged solidarity (Knight 2015).

He stopped being the spokesperson in press conferences in May 2020 and those who took his place (as spokespersons) never matched his popularity but retained the emphasis on 'protect the vulnerable and the public health system.' With the advent of subsequent waves of the pandemic (and a rise of numbers of deaths) and with the proliferation of conflicting information about vaccines and the usefulness of confinement measures alike, support for government measures (always claiming that they followed the science) dropped. Yet, facts about the public health system and the tipping point of breaking down involves normative judgements such as how a particular society is expected to tolerate suffering of vulnerable populations such as the elderly, the importance we attach to the value of public health system and what it can deliver in times of crisis (solidarity), and freedom of choice from medical

paternalism (Pamuk 2021; 2022). But, trade-offs between competing values were not publicly discussed. On 15.10.2022 Prof Tsiodras commented on vaccination policy '*Risk communication needs experts, a team, collaboration, detecting what your audience thinks (public perception). Something we failed at. We failed miserably [...] The main structure of risk communication is built on trust in the doctor, the scientist, the expert who will analyse the risk communication. We have lived through countless false news and we are still living*.' (Kathimerini 2022)

We would like to argue that the problem can be approached in a different way. It is possible that HCWs perceive risk in drastically different ways from experts (see on this point more generally Larson, Lin and Goble 2022). We turn to consider these aspects now.

4. Primary Narrative of Healthcare workers' position

We conducted 36 interviews with unvaccinated (suspended) HCWs and 38 with HCWs who vaccinated after announcement of mandates. The primary narrative emerging from the interviews with HCWs is that mandates were in conflict with the right to self-determination and freedom of choice. Vaccination is a medical procedure and HCWs needed to give their consent. Although in principle public health reasons could trump individual rights, they thought that public health reasons did not justify mandates in their specific case. The reason according to them is that they were taking extra care not to transmit the virus to patients, colleagues and their environment. Moreover, they referred to research showing that vaccinated and unvaccinated carry similar viral load, therefore self-testing two or three times a week would be a way to address concerns. They emphasized that they do not violate professional codes of conduct (do not harm) and did not fail to show social solidarity with the public health system exactly because they took care not to transmit the virus and they were willing to do frequent self-testing. Moreover, they had serious doubts about safety of the vaccine and they attribute their hesitancy to fear of side-effects (although they explicitly said that they do not identify with the anti-vaccine movement in general). For some of them, coercion strengthened their hesitancy while others said that they vaccinated so that they do not lose their jobs. Finally, lack of trust in the political system strengthened hesitancy. Lack of trust was further strengthened as they felt they belong to a professional group that was

stigmatized and faced social exclusion in a society divided into vaccinated and unvaccinated. In more detail, we found the following themes:

4.1. Individual choice

Interviewees in both groups (A and B) said that they were against compulsory vaccination, because it is up to individuals to decide for themselves and their body. Similarly, in Group B interviewees said that they were forced to vaccinate yet health professionals have every right to decide not to vaccinate (with only one exception (interviewee 20b) who had changed their mind completely and was even in favor of mandates.

4.2. Side effects and hesitancy

Group A and Group B expressed similar fears with regard to reasons for which they were hesitant. All questioned the safety of the vaccine and the authorization procedure followed. They were concerned about side effects and they said that this was a new vaccine that was authorized under emergency procedures, it had not completed clinical trials and as such they considered it to be at experimental stage.[7] Some mentioned fear of the unknown[8] as well as doubts about efficacy.[9] The overwhelming majority said that they feared long-term side effects, while some were also concerned about short-term side effects.[10]

Some interviewees mentioned additional reasons such as health problems that did not allow them to get vaccinated (rheumatoid arthritis, kidney problems, allergies, autoimmune diseases, deafness, phospholipid syndrome, psoriasis).[11] Others said that they did not belong to vulnerable groups,[12] they did not get sick easily and avoided taking medication in general.[13]

4.3. They do no harm to patients and themselves

They pressed the point that they know how to protect themselves, patients and others. We asked group B specifically about protective measures and they said that they were wearing

[7]Group A: 31 out of 36,
Group B: 34 out of 38 (1a,2a,3a,4a,5a,7a,9a,10a,11a,12a,13a,14a,15a,16a,19a,20a,21a,22a,23a,25a,26a,27a,28a,29a,30a,31a,32a,33a,34a,35a,36a,),
(1b,2b,3b,4b,5b,6b,7b,8b,10b,11b,12b,13b,14b,15b,16b,17b,18b,19b,20b,21b,23b,24b,26b,27b,28b,29b,30b,31b,32b,34b,35b,36b,37b,38b,
[8] (4b,7b,8b,12b,17b,24b,30b,31b,37b).
[9] (1b,14b,23b).
[10]Group B: 8b,10b,12b,15b,18b,20b,21b,24b,26b,30b,32b,37b
GroupA:1a, 2a,3a *4a,* 5a,6a, *25a,29a*,30a,31a,32a,33a,34a,35a.
[11]Group A: 3a,4a,5a,12a,21a.
[12]16b.
[13] 9b.

masks,[14] gloves,[15] hand washing,[16] limited contacts,[17] avoidance of crowded places (19b), keeping distance,[18] and avoiding indoor spaces (11b,17b), use of antiseptic[19] and disinfectants,[20] regular rapid tests (13b,28b), clothes were put in a special bin and shoes were left outside the house (37b), no hugging and kissing with people was allowed (37b), exercise, good nutrition and avoidance of stress (18b). Respondent 8b decided to take their family away and stayed alone during the quarantine period. Respondents 12b and 32b did not visit their extended family. 32b did not even see friends to protect them. Respondent 28b did not travel on public transport. 26b did not come into contact with vulnerable groups and oncology patients.

4.4. Past Attitudes towards the flu vaccine and perceptions of risk

The attitude of both groups towards vaccination before the pandemic was generally positive.

"I am not associated with the anti-vaccine movement. Anti-vaccinators are a very specific small percentage who do not take any vaccines (Respondent 3a)

HCWs said that they and their children are vaccinated against childhood illnesses.[21] However, there is a significant difference between the two groups regarding the influenza vaccine. In Group A the overwhelming majority were against the flu vaccine too. In contrast, in group B, interviewees were divided although more than half of our interviewees said that they would vaccinate against seasonal flu.[22] Those who said they did not need the flu jab offered reasons such as not belonging to vulnerable groups (it is a vaccine for older people) and did not get sick easily. They also said that the flu vaccine is not effective as the virus mutates.

[14](2b,3b,4b,6b,7b,8b,11b,12b,13b,14b,15b,16b,17b,18b,19b,20b,21b,22b,23b,24b.25 b,26b,27b,28b,29b,30b,31b,32b,34b,35b,36b,37b,38b).
[15] (21b,24b,27b,31b).
[16] (11b,12b,13b,14b,15b,16b,17b,20b,21b,22b,24b,25b,28b,29b,34b,38b).
[17] (2b, 13b,14b,21b,27b,36b).
[18](3b,4b,7b,9b,10b,17b,22b,26b,27b,30b).
[19](3b,6b,7b,9b,15b,26b 29b,30b,32b,36b,37b).
[20](12b,23b,25b,35b).
[21] Only two interviewees in Group A said they do not trust vaccines in general, (8a,9a) still one of them (8a) said they had vaccinated their child.
[22](3b,4b,5b,6b,7b,8b,10b,11b,15b,20b,21b,22b,25b,27b,30b,32b,33b,35b,38bwere in favor of vaccination against the seasonal flu. Others were against (12b,14b,16b,17b,23b,24b,26b,29b,31b36b,37b) and one said that she was in favor if administered for the elderly (28b).

4.5. Reason for which HCWs changed their views and vaccinated

Inquiring into the reasons for which people change perceptions of risk is crucial. 21 out of 38 interviewees in group B said that they gradually changed their mind in favor of Covid-19 vaccination. They started feeling fearful of contracting Covid-19 (32b) and decided that they had to be vaccinate to be protected.[23] They also said that during work at hospital they saw many people getting sick from Covid-19[24] and dying.[25] One interviewee said that they vaccinated because they lost their father to Covid-19. Others reported (10b,21b) that they changed their minds because several of their colleagues and relatives were vaccinated (16b) and found the vaccine to be safe as there were no significant side effects (6b,16b).

Table 2

RESPONDENTS	Reasons for which some respondents changed their mind and vaccinated
1	Respondent 31b was vaccinated because they saw a lot of people who got sick with Covid-19 and died and also because they were put on probation
2	Respondent 36b to protect because many colleagues got infected. But they did the third dose also because of mandates.
3	Respondent 34b was vaccinated to protect themselves because they worked at a place where they felt they were in danger.
4	Respondent 37B was vaccinated to protect themselves because they saw a lot of people getting sick and dying.
5	Respondent 32b was vaccinated to protect themselves because they worked at a Covid-19 clinic and was scared after seeing people get sick and die
6	Respondent 30b was vaccinated because they lost their father and watched young people and athletes die
7	Respondent 23b was vaccinated because they gradually calculated the pros and cons and thought it over.
8	Respondent 28b was vaccinated because the pandemic wave became more intense
9	Respondent 20b was vaccinated because they realized they needed protection.
10	Respondent 15b was vaccinated because they saw the criticality of vaccination weighed pros and cons and decided the pros outweighed cons
11	Respondent 6b was vaccinated because it was made mandatory but also because they saw that colleagues were doing it and did not suffer from any side effects
12	Respondent 10b did it because everyone was doing it although they were still afraid of side effects

[23](15b, 20b,23b,28b,32b,34b,36b).
[24](31b,32b,37b,28b).
[25] (30b, 31b,37b).

13	Respondent 21b because other colleagues were doing it and because of mandates.
14	Respondent 16b thought about it and in the end decided to do it mostly because their family did it and saw that it was safe vaccinated
15	Respodent8b got vaccinated because all questions were answered by a trustful doctor.
16	Respondent 11b because they were pro-science.
17	Respondent 13b was convinced by the media and felt that the side effects would be less than the consequences of not being vaccinated
18	Respondent12b saw that things were getting worse and it was the only solution
19	Respondent 35b was waiting for the NOVAVAX protein vaccine to come out
20	Respondent 22b gradually found necessary information from TV and the internet and then got vaccinated
21	Respondent 33b similarly was vaccinated as they were gradually convinced of merits.

The remaining 17 of the thirty-eight interviewees in group B[26] said that the only reason for which they decided to get vaccinated was to avoid losing their jobs.[27] '*Because I would lose my job. And I have no other resources to be able to live* (2b).'

4.6. Mandates as a reason not to vaccinate

According to group A, vaccine mandates had the opposite effect and somehow reinforced their decision not to vaccinate. For them, freedom meant being able to express their opinion without fear of consequences and to decide for themselves about their own bodies. They said they were fighting for freedom, free choice and self-determination. They needed more time to be able to decide and more information.[28]

4.7. Should the vaccine have been released

There were differences between groups A and B. Generally, group B was more supportive. Group A were more negative. We asked group A if they think the vaccine should have been released and some said that they were not sure and expressed the opinion that perhaps it should have been released for vulnerable groups.[29] " *I'm not sure. Maybe it should have been released because they didn't have enough treatments yet, for certain population groups*' (12a). Others (15a,16a) argued that it should have been released but with full

[26]1b,2b,3b,4b,5b,7b,9b,14b,17b,18b,19b,21b,24b,25b,26b,27b,29b,38b.
[27] (1b,2b,3b,4b,5b,6b,7b,9b,14b,17b,18b,19b,21b,24b,25b,26b,27b,29b,31b,36b,38b).
[28] Group a (1,2,3,7,8,9,11,13,14,15,17,18,20, 21,23, 26,27).
[29](11a, 12a, 17a,18a, 23a, 25a, 26a,).

transparency and after all studies are made public. Yet, there were those less moderate[30] who argued that the vaccine should not be used in any population group because it is at experimental stage.

In contrast, in group B, the majority of them answered that the vaccine should have been released.[31] Some were not sure[32] while some argued that it should have been released but not so quickly.[33] Others thought it should have been released only for vulnerable groups.[34] One individual responded that it should have been released only if it had been proven to be effective (26b). In group B most of the participants believe that the vaccine is potentially harmful for the whole population and not just for themselves.[35] While others argued that it is different for every person:[36] *'Everybody reacts differently I can't know how it might affect others. I can only know how it affects me (24b).'*

4.8. Opposition to vaccines does not harm the vulnerable (manifesting a failure of solidarity)

In group A interviewees said that there is no question of social solidarity since no immunity wall is created and transmission and disease is not prevented by vaccination.[37] Everyone is vaccinated for their own good and protection.[38] Similarly in group B, respondents said that they believe that vaccination is an act of social solidarity aimed at the common good,[39] provided that the protocols have been followed (11b,28b,36b) and that vaccination has been shown to make a real contribution to the general good.[40] But they alluded to that this was not the case for the Covid-19 vaccine. Participants (1b,8b,13b) believed that there was no question of social solidarity since vaccination could not prevent the transmission of Covid-19 (25b), nor the deaths of those vaccinated (4b). Vaccination is not a collective action but an individual choice (18b,25b). Everyone vaccinates to protect themselves.[41]

[30] (9a,13a,19a,20a,21a,22a).
[31] (3b,11b,13b,14b,15b,12b,21b,22b,20b,28b,30b,31b,36b,37b).
[32] (17b,23b,27b,34b,35b,38b).
[33] (2b,4b,6b,8b,18b,19b,32b).
[34] 7b,19b,29b.
[35] (2b,4b,5b,8b,11b,15b,16b,17b,18b,21b,26b,30b,31b,32b,35b,36b,38b).
[36] (7b,24b,34b,37b).
[37](2a,6a,9a,10a,13a,17a,22a,23a,25a,26a).
[38](2a,3a,5a,12a,21a,23a,27a).
[39](5b,7b,9b,11b,12b,16b,20b,21b,22b,26b,28b,29b,30b,31b,34b,37b).
[40](9b,17b,23b,27b,36b).
[41](2b,22b,25b,30b,35b).

4.9. Polarization

For group A the lives of unvaccinated health workers became very difficult because of their decision not to vaccinate. [42] They lost their jobs, their income and their career development. They lost their social life, changed their relationships with their social environment and experienced social exclusion.[43] Group A interviewees expressed strongly these sentiments

Bullying on a daily basis. I found myself without pay and without insurance for 18 months. I am financially ruined... (28α)

My life is very difficult. I lost my job, I have no social life..,(3a)

4.10. Trust

Both groups express distrust of the role of the pharmaceutical industry. They believed that pharmaceutical companies aim to make a profit [44]and promoted their financial interests.[45] Moreover, participants from both groups[46] state that they do not trust the political system. They have lost their trust since the economic crisis that marked the degradation and devaluation of the political system in all its forms of expression (they referred to memorandum commitments, austerity, salary and pension cuts, economic recession, reversal of referendums, corruption, inability to deal with crises).[47] They believe that everyone was pursuing their own agenda (34b,36b); politicians made decisions without any concern for the citizen (5b,13b), especially in the health sector (5b). Health services have deteriorated (25b). Privatization and contracts with private contractors do not benefit either the patient or HCWs (25b). *'And I see everywhere shortcomings, problems, irresponsibility ……* (7b)'

Group A[48] was more outspoken than group B[49] when it came to the problem of lack of trust. Yet, interviewees from both groups trust frontline workers such as doctors and nurses but not health managers at hospitals and those who make health policy. They also reported that the health system lacks staff and health equipment, lacks organization and does not

[42]1a,2a,3a,5a,7a,9a,11a,12a,18a,19a,26a,27a.
[43]14a,15a,16a,17a,18a,21a,24a,26a.
[44]1b,2b,3b,4b,5b,7b,10b,13b,14b,15b,17b,19b,21b,23b,24b,25b,26b,27b,29b,30b,34b,35b,36b,37b.
[45]2a,3a,4a,5a,6a,12a,13a,14a,17a,19a,24a,27a,29a,30a,33a.
[46]GroupA:1a,2a,3a,4a,6a,8a,9a,11a,18a,19a,20a,21a,23a,24a,27a/1b,4b,5b,7b,9b,10b ,11b,12b,13b,16b,17b,18b,19b,24b,25b, 26b,27b,28b, 29b, ,30b33b,34b, 35b, 37b.
[47](Group A 1a,2a,23a).
[48]Group A: 2a,4a,5a,6a,15a,16a,18a,23a,25a, 27a,35a,36a.
[49] Group B:3b,4b,6b,10b,15b,19b,20b,21b,22b,25b25b,28b,30b,31b,32b,35b,38b.

function properly and they put the blame on politicians. '*All of us daily .., we face challenges related to inadequacies of materials, personnel, building infrastructure, limited capacities on the part of the management of each hospital, etc* (1a)'

Table 3 Primary Narrative

Primary Themes	Sample Text
Individual choice	*Everyone decides for himself (16b*)
Side effects and hesitancy	*I was afraid that any side effect would be irreversible (35a)*
They do no harm to patients and themselves	*No one is in danger from me. Since I'm careful. Why should I get vaccinated? I don't see the point (4a)*
Past Attitudes towards the flu vaccine and perceptions of risk	*"I am not associated with the anti-vaccine movement. Anti-vaccinators are a very specific small percentage who do not take any vaccines (Respondent 3a)*
Reason for which HCWs changed their views and vaccinated	"*Because I would lose my job. And I have no other resources to be able to live*." (2b).
Mandates as a reason not to vaccinate	*No one can force you to do something to your body that you don't want to do. (14a)*
Should the vaccine have been released	" *I'm not sure. Maybe it should have been released because they didn't have enough treatments yet, for certain population groups*' (12a)
Opposition to vaccines does not harm the vulnerable (manifesting a failure of solidarity)	*But when vaccination does not prevent infection, does not prevent the transmission of the virus, what social solidarity are we talking about? (17a)*
Polarization	*Bullying on a daily basis. I found myself without pay and without insurance for 18 months. I am financially ruined. (28α)*
Trust	*'All of us daily …, we face challenges related to inadequacies of materials, personnel, building infrastructure, limited capacities on the part of the management of each hospital, etc* (1a)'

5. Hermeneutic interpretation

Interviews show various differentiations. The sample in the first group is more extreme in its views while group B is more moderate. The majority of participants in group B for example recognize that the vaccine should have been released for vulnerable populations while group A disagrees even on this. Moreover, in group A mandates reinforced their decision

not to vaccinate. They perceived mandates as a threat to their freedom and caused them anger. For group B things were different. While some vaccinated in order not to lose their job, 21/38 interviews in group B said that they gradually changed their minds as they became exposed to new experience and information from their immediate social and professional environments. These findings align with theories showing that individuality is constructed through interacting with others (Mead 1973) and it is formed through both internal and external conversations (Archer 2007) rather than based on individual decisions taken in a private space secluded from society. Moreover, this finding shows that mandates were not the primary reason for which this group of people changed their mind (and we can thus question the effectiveness of mandates). But mandates were a crucial factor for the rest of the people in group B. For group A on the other hand, mandates strengthened hesitancy (and again in this case we can question the effectiveness of mandates). Still, the question of perception change (or not) requires more analysis. We turn to hermeneutics for assistance.

5.1. False optimism, innate immunity and the flu jab

We noted that HCWs were not only afraid of side effects of the Covid 19 vaccine but also side effects of the flu vaccine. Moreover, they underestimated the risk of catching and spreading the virus for seasonal flu and COVID-19 alike and avoided vaccination. In fact, many interviewees from both groups A and B explicitly told us that they consider COVID-19 to be similar to seasonal flu or said that they think it is not so dangerous as portrayed in the media.[50] Interviewee 26b said '*Covid-19 was given a lot of unnecessary coverage and that something similar that had happened in 2007 and 2010 with H1M1*', 2b said '*it is a disease like other [flu like] disease*;' 29b said '*things are not tragic*' and 36a explained that '*it is a virus with low morbidity 0, 05 mainly affecting vulnerable groups.*' Some also mentioned explicitly innate immunity as a reason for not vaccinating.[51]

Some of them also explicitly referred to innate immunity: *'Once you either get sick or get vaccinated your immunity will last you six months so why should I go get vaccinated? So, let it be'.* (7b)

[50]13a, 14a, 24a,27a, 28a,32a, 36a, and 2b, 9b, 22b, 23b,26b, 29b, 34b.
[51]5a, 10a, 11a, 33a and 7b, 18b.

'*And when we say herd immunity, I understand that those who are healthier will get it and won't get sick and those who are scared will be more protected*.' (18b)

'*The strangest thing of all, both scientifically and politically is how the importance of natural immunity has been downplayed …It is known that developing antibodies are much better than vaccination and if there is reinfection …it is milder* (10a).'

Our interviewees' references to innate immunity and seasonal flu provide important cues for a hermeneutic analysis. Meaning needs further elucidation through linking with other texts. Indeed, there is an academic publication by the president of the National Vaccination Committee (Theodoridou, 2014) where she explains that Greek HCWs feel invulnerable because of the immunity they have acquired from contact with patients. '*HCWs often manifest a falsified sense of invulnerability due to the protection acquired from their long-standing period as patient care providers.'* Perhaps the best text to further elucidate the idea that a false sense of security may influence perception and decisions is a publication in *Nature* that dates back to 1919 and discusses the reasons for which the Spanish flu killed so many people. The paper has been written 100 years ago yet still raises questions that are relevant for us today. Similar to Covid-19 there was much uncertainty back then with regard to transmission and origins of the virus. Moreover, people often exhibited false optimism, underestimated risks and as a result ignored prevention strategies and posed a threat to themselves and others. Soper (1919) notes that people who were not infected had the burden to take preventive measures and that this burden became even greater given the uncertainty and controversy that surrounded the science behind the Spanish flu.

We find the same false optimism in HCWs' statements. If we accept this point, then our finding that perceptions change in light of lived experience (people getting seriously and dying in one's immediate social circle or discussions with trustful persons about harms) makes more sense. These findings align with other studies (Larsson, Lin and Goble 2022) showing that individuals minimized the severity of COVID-19 and/or underestimated the likelihood of contracting it, either because no one in the social circle had been affected, or because those affected did not develop serious symptoms. Our findings also align with studies showing that HCWs have a different perception of risk and that attitudes with respect to the flu vaccine influenced attitudes towards Covid-19 vaccine (Alasmari, Larson & Karafillakis 2022). Health workers who believed they had a high risk of disease were vaccinated for Covid 19 at a higher

rate (Nyamuryekung'e et al, 2023). Similar to Papazachariou et al, and colleagues (2022) we also found that those who were vaccinated against the flu before and during the pandemic were more likely to be vaccinated against Covid-19. In short, given past practice of avoidance of immunization for all the reasons discussed here, changing perceptions about innate immunity and perceptions about the seriousness of catching Covid-19 seems to be the key to a successful policy.

5.2. Science advice and consensus

Our interviewees' references to trustworthiness of the science advice system also provide useful cues:

'*Actually, I don't trust anyone. One was saying one thing, the other was saying another... And they themselves were in a situation where they couldn't understand what was happening, what could protect us and what is it that has come out. ..[what] has killed so many people*.' (2b). '*The way the system is [organized], the political part of the health care system, with the special [science] committees staffed with people appointed by government … you don't hear opposing views …., I can't have confidence*.' (1a)

. The science advice system in Greece can be treated as a text with its own narrative. Discussing this narrative is important so that we link it to HCWs statements. The Greek government expected that the public health system (and HCWs) ought to speak in one voice and follow the scientific consensus as articulated by the newly established science advice system in Greece. They downplayed any uncertainty (as did many other science committees around the world see Jarman *et al.,* 2022) so that they communicate a single authoritative message and increase chances of collective action. Indeed, in February 2020 the Greek government put in place a committee of independent experts to assist with the management of the COVID-19 crisis, the National Experts Committee on Public Health (NECPH) (Government Gazette 2020). The new Committee played a central role during the crisis and presents a case of evidence based policy (Ladi *et al.,* 2022), marking a break with many past unsuccessful efforts to introduce science as the basis for policy in Greece, the limited role of expertise and the poor quality of reforms (Ladi et al, 2021; Monastiriotis & Antoniades 2013; Trandidis 2016; Tinios, 2013).It is notable that all member names were made publicly known.

Sotiris Tsiodras, Professor of Pathology and Infectious Disease at the National and Kapodistrian University of Athens Medical School, was appointed chief scientist and president

of NECPH (he is also member of the National Vaccination Committee). Professor Tsiodras is a renowned and trusted figure with a reputation of independence, who turned down a position at the University of Harvard and came back to serve his country (Protothema 2020). In appointing a Chief Scientific Advisor (CSA) and institutionalizing an expert committee, the Greek government followed a well-tested model of science advice used in Europe and beyond (Wilsdon 2014; Gluckman 2014; Melchor. Elorza, & Lacunza 2020), organized around the idea of a science leader who bridges the world of science with the world of politics. The choice of Prof Tsiodras bolstered the authority of the committee, projecting to audiences the prestige of science but also that science was put in the service of public health (Tsiodras. 2021).

As noted earlier, dates of meetings of science committees as well as the basic agenda to be discussed was announced in the press and then widely publicized and televised press conferences took place. Communicating science during these media events can be seen as a ritual performed alongside a common storyline; speakers intend to 'unite' their audiences into a large whole (Dayan and Katz 1992, pp. 5–9). Indeed, it was Prof Tsiodras, the Greek government's chief scientist, the one who inaugurated these press conferences. During the first phase of the pandemic (before vaccines became available), press conferences were held every evening at 6pm led by him and he became extremely popular. There was a particular arrangement of roles: The chief scientist first presented summaries of recommendations, then followed by the recently appointed Deputy Minister of Civil Protection and Crisis Management, who announced new measures based on recommendations and finally, journalists asked questions. The dramaturgical function of such arrangements is to inspire credibility to audiences (Hilgartner 2000), government sought to project to the audience that they 'follow the science,' while journalists asked questions to clarify the science. Prof Tsiodras stopped appearing in press conferences in May 2020 but retained membership both at the NECPH and the National Vaccination Committee. Still, by then he had introduced a unique style of science communication and a unique narrative that strongly resonated with audiences.

Government said they followed the science and sought to legitimize difficult decisions based on credible science. But credible science needs to be performed and displayed and scientific committees consider unanimity crucial to achieve this. Opinions are a consensus building exercise yet there is a backstage where the discarded wordings, the diverging

opinions and the ways in which difference of opinions is managed is concealed from view (Hilgartner 2000). The role of dissent and deliberation has been recently brought to the spotlight in various analyses of science advice systems around the world. In the post COVID-19 era, the problem of lack of trust and the questioning by citizens of the extent to which governments followed the science or rather chose the science that suited their agendas or failed to open to debate the hidden values that science advice promotes, is increasingly being recognized as a political problem of major importance around the world (Jarman et al. 2022; Pamuk 2022; 2021; McKee at al., 2022; Hilgartner et al., 2021; Jasanoff 2021; Hilgartner 2020; Jasanoff 2005).

The Greek government tried to build a science advice system following developments in Europe and beyond, which inherited well-known pathologies. HCWs statements with regard to lack of trust towards the system of science advice needs to be seen in that light.

5.3. Public health system in Greece and crises

'*I'm not very much in favor of the current situation because they've privatized a very important part of .. health care, they have degraded [public] services very much. Too many medical and nursing staff are quitting. Now they've announced 1000 posts for doctors just before the general election, I am sorry to say it but we've been begging government for two, three years now ….* (25b).'

The overwhelming majority of our interviewees expressed frustration with government pushing an agenda of privatization that devalued the public health system. Indeed, there are various reports and analyses that can further elucidate meaning of lack of trust for overworked personnel in an understaffed and underfunded system such as the Greek public health system. The austerity measures during the Greek financial crisis (first austerity measures agreed in 2010) resulted in a 15% cut in the salary of health workers, a 10% cut in pensions, the abolition of benefits and an increase in the retirement age from 65 to 67. It is worth noting that health workers in Greece before the financial crisis had the lowest salaries in the European Union. With the financial crisis salaries were further reduced and benefits abolished. Horizontal cuts were implemented through tax increases, cuts through the single payroll for all civil servants and reductions in special payrolls for doctors. HCWs perceived salary reductions combined with increasing workload and unsuccessful reforms as an offense to their professional value and social role (Kerasidou et al, 2016). In addition, no performance-

based productivity bonuses were given and no replacement of retired staff was provided as it was decided to appoint only one person in place of five retiring staff. Several health workers retired after the memorandum in order to secure a larger pension. This worsened the problem of an understaffed hospital system, bearing in mind that there was a shortage of staff in the health sector even before the financial crisis (Economou et al, 2015). During the Covid-19 pandemic the long-term pathologies of the health system (mismanagement, inefficiency) negatively affected workers leading to burnout and lack of job satisfaction. Nurses had the highest burnout due to increased workload, low pay and lack of autonomy (Galanis et al,2023). Staff shortages reinforced intention to leave work further exacerbating understaffing. During the pandemic, the phenomenon of silent resignation occurred. Since finding a job was difficult, workers did not quit their jobs but continued to work with lower performance. Nurses chose quiet resignation more than other health workers (Galanis et al, 2023). It is noteworthy that according to the OECD, when the pandemic broke out, Greece had the lowest ratio of nurses and general practitioners per 1000 inhabitants in Europe. The ratio was 3.4 nurses per 1000 inhabitants and 0.44 physicians. In Germany for example the ratio is 11.79 nurses and one physician per 1000 inhabitants.

In short, during the pandemic, as admissions increased dramatically, the health system went under extreme pressure and staff were required to work in extremely difficult working conditions in a high-risk environment (Galanis et al, 2023). For these people, lack of trust towards politicians stems from the devaluation of public health as a common good.

6. The way forward: Reforming the science advice system in Greece and beyond

The goal of vaccine mandates for HCWs was to avert transmission of virus inside hospitals and increase levels of vaccination. It could be argued that mandates were effective as numbers of vaccinated HCWs increased considerably. But they may have also accentuated existing distrust towards political institutions given that HCWs are deeply distrustful of government specially after years of continuing crises. Moreover, hesitant HCWs were portrayed as irresponsible and irrational, yet as we showed in the previous section, they have their own conception of risk. Those hesitant HCWs who willfully changed their mind and

decided to vaccinate reviewed their initial conception of risk in light of new experience shared with others such as people who fell ill. The Greek government on the other hand, 'followed the science' of their newly established science advice system, yet at the same time the stark reality of a crumbling healthcare system was a major factor influencing decisions. In short, in the previous sections hermeneutics inspired analysis revealed hidden meaning in actors' statements and the different ways in which they constructed risk to public health.

Hermeneutics offers useful directions along which we can think of ways to improve the science advice system in Greece and beyond alongside an open and interactive processual perspective. Accommodating a broader array of perspectives is key to improve the system and requires eliciting information from key stakeholders and society at large (Pamuk 2021; Anderson 2006, Bohman 2006; Dewey 1927). In our case study, HCWs' different perceptions of risk led them to engage in a balancing of trade-offs between professional responsibility and autonomy in a drastically different way from the official account. Acknowledging that it is a case of difference of perception (rather than a moral failing on the part of professionals who do not adhere to the principle of 'do no harm') is crucial. While punishing makes sense for people who do not conform to professional standards because they are selfish or lazy, in cases there is difference of perception, a different approach based on persuasion is preferable so that the laudable goal of increasing vaccination of HCWs and the population alike is achieved. In fact, our analysis of interview material shows that mandates make hesitant people less likely to vaccinate rather than more likely.

Our interviewees emphatically told us that they completely opposed mandates as policy cannot be based on pressure,[52] obligation,[53] mandates[54] or fear.[55] The Greek government could have required HCWs to do self-testing prior to reporting to work two or three times a week, and most of our interviewees told us that they would have accepted this as a way out of the conundrum. Some said they did not have enough information[56] and there was panic (16b,33b). There was no dialogue and no presentation of opposing views (5b).

[52](3b, 5b, 36b, 38b).
[53](17b, 19b).
[54](4b, 9b, 10b, 11b, 14b, 18b, 24b, 25b, 35b).
[55](6b, 7b, 19b).
[56](1b, 7b, 14b, 15b, 23b).

'For me it was a mistake. ... I'm more of the opinion that you have to convince someone with arguments to do something, not to impose something (1b). Participants believe that vaccination policy should be based on information[57] and on physicians sharing their personal experience (4b). The authorities should try to convince people with arguments[58] without scaring them[59] and imposing their opinion with punitive measures (17b). There should be dialogue and public debate on television (13b, 29b) and opposing views should be heard (5b, 13b, 18b). They should have let people decide for themselves.[60] '*How you explain things matters. Suspicions are dissolved*.' (25 b).

In Jarman and colleagues' (2022) discussion of the UK science advice system various point are raised that may be useful to us. The authors explain that science advisors should be critical friends to governments and engage groups of citizens affected by government policies. They stress the importance of diverse streams of knowledge feeding into policy, including dissent, so that debate in open meetings is initiated. Moreover, framing of questions to be discussed should not originate from government alone. Similarly, McKee and colleagues (2022) discuss the role and function of Independent Sage in the UK, which made use of local expertise, engaged civil society, considered themselves a critical friend to government, and explicitly acknowledged they act as issue advocates (rather than neutral advisors) finding appropriate connections between science and policy.

Pamuk's recent book (2021) is of particular importance to the present discussion. It offers an erudite analysis of ways in which existing institutions can be reformed to accommodate dissent and new institutions can be built so that open dialogue is encouraged. The goal is a science advice system that strikes the proper balance between scientific and democratic authority. She calls for the creation of a 'science court,' initiating 'adversarial proceedings,' in the form of a citizen jury that interrogates experts, so that it becomes possible to '*examin[e] the grounds of competing claims and reveal[e] questionable assumptions and errors*' (115). The idea is that experts formulate often incompatible scientific views and they need to argue against or for them in front of the citizen jury. The political and epistemic advantages in such proceedings would be to expose '*background assumptions, political biases,*

[57](2b, 6b, 7b,8b, 13b, 14b, 15b, 20b, 33b).
[58](6b, 11b, 15b, 30b).
[59](11b, 25b).
[60](8b, 9b, 10b, 12b, 18b, 21b, 24b, 25b, 27b 38b).

and omissions of rival views as well as clarify the levels of uncertainty' (pp.100–101). This allows critical scrutiny by experts but also (crucially) by a randomly selected jury of ordinary citizens. It is citizens who will vote on the policy in question by evaluating claims (p. 121). Pamuk draws inspiration from various successful deliberative experiments around the world that take place in citizen juries and which have succeeded in many occasions to yield impressive results in highly controversial questions (the Irish experiment of 2018 with regard to changing the law of abortion is one such example (Courant 2021). Deliberations are widely publicized so that discussions also spread in the public sphere and more than one citizen juries could be formed. It has been proven empirically that participants change perceptions in light of other participants' experience and knowledge (Druckman 2004).

For Pamuk (2021, p. 112) the science court would hear petitions by citizens, NGOs or the government on 'policy questions with a significant component of scientific knowledge.' Those initiating proceedings frame the question (it can be formulated as presupposing a yes or no answer: 'Should the government impose a national lockdown to slow the spread of COVID-19?' (p. 113). In our case, the question would concern vaccination mandates for HCWs and a panel of HCWs together with scientists could try to disperse suspicion but also present dissenting voices. In short, the problem of distrust towards science more generally is a problem of trust in democracy. And we suggest that problems of democracy are solved by deepening democratic institutions rather than mandates.

7. Conclusions

In this article, we adopted a hermeneutics lens to show that governments and publics' perceptions and experiences of a policy situation constitute multiple new realities or multiple problems. HCWs and government's understanding of the proper balance between professional responsibility and autonomy were starkly different as they understand risk in a completely different way. A case of difference of perception should be treated in a different manner than a case of moral failing on the part of professionals who fail to adhere to the principle of 'do no harm.' Rather than mandates, persuasion is the best strategy so that the laudable goal of increasing vaccination of HCWs and the population alike is achieved. Public debate and discussion alongside institutional reforms such as science courts could give voice

to minority views, disperse suspicion and misunderstandings, but also expose the arguments of those in favor of vaccination and even mandates. The point is to reach a good decision and for this to be done diverse arguments needs to be heard. Moreover, various online rapid deliberation experiments conducted during the pandemic show that the requirement of speedy response can be satisfied during emergencies (Sideri and Prainsack 2022). The science advice system in Greece and beyond could be improved to be more deliberative rather than asserting its credibility based on the image of consensus.

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