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Short Communication

Vaccine Hesitancy in Europe: The Concept and Determinants During the Covid-19 Pandemic

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Abstract

Most papers or talks about vaccines and vaccination usually begin by highlighting their huge importance and contribution to public health. This claim certainly has a scientific and medical backup. On the other hand, challenging vaccines and vaccination as a public health measure has been sporadic throughout history ever since the first vaccine was developed [1]. We can say that there has always been a certain discrepancy between scientific evidence and public perceptions about vaccines and vaccination. The concept of vaccine hesitancy has been created to describe and understand those public views and behaviours about vaccines and vaccination. The concept is not entirely new and tied exclusively to the current Covid-19 context, but it is also not as old as vaccines themselves or the first immunization campaigns. The concept of vaccine hesitancy was introduced in the first decades of the 21st century by the World Health Organization as a response to the growing scepticism towards childhood vaccines [2].

Keywords: Determinants during; covid-19 pandemic; vaccine hesitancy; allergies

Introduction

My aim in this lecture is to present the concept of vaccine hesitancy by specifying its meaning and various influences which have been identified as its determinants. Furthermore, I will show how the concept contributes to better understanding of people's vaccination behaviour and decisions in the current Covid-19 pandemic context. As the title of the lecture suggests, I will focus specifically on the European region. Finally, I will compare Eastern and Western Europe to point out the differences in vaccination decisions and behaviours between these two subregions, as well as to point out the significance of contextual determinants of vaccine hesitancy. Prior to the Covid-19 outbreak, Europe was marked as the region with the lowest vaccine confidence [3]. Contemporary parents' scepticism about vaccines in Europe is usually traced to 1998 when now discredited Lancet paper was published, associating the risk of autism and bowel disease with the measles, mumps and rubella (MMR) vaccine [4].

The paper especially resonated in the European countries which led to a dramatic drop of MMR vaccination rates and to subsequent outbreaks of measles. The H1N1 influenza pandemic in 2009 was another occasion when vaccine scepticism in Europe became evident. Some research findings actually suggest that vaccine hesitancy in Europe increased since the influenza pandemic of 2009 [5]. Based on this, it is important to note that vaccine hesitancy doesn't exclusively apply to childhood vaccines, nor it is only limited to Europe. It also applies to adolescent and adult vaccines and it has been identified worldwide. Also, vaccine

hesitancy is not only limited to the general public, as it has been found among health workers as well [6]. To put it succinctly, the concept was introduced before the outbreak of the Covid-19 and it was created to describe a globally present problem of public and some health workers' behaviour in relation to childhood, adolescent and adult vaccination.

What is vaccine hesitancy exactly? I will present here a definition created by the WHO's Strategic Advisory Group of Experts on Immunization (SAGE) , but in parts so we can address each part separately. The first part says: "Vaccine hesitancy refers to delay in acceptance or refusal of vaccines despite availability of vaccination services". This means that vaccine hesitancy does not apply to situations where vaccine uptake is low because of structural reasons like the lack of vaccines or access to vaccines. What follows from this is that low uptake doesn't necessarily have to be the result of vaccine hesitancy – it's cause could be the lack of vaccines or available services. This further suggests that vaccine hesitancy is a dominant reason of low uptake in countries which have more or less well-organized vaccination services, and those are usually high- or middle-income countries. Alternatively, we can talk about vaccine hesitancy in any setting where people are given the opportunity to accept or reject vaccines.

The SAGE working group also identifies vaccine hesitancy at an individual and community level. The group defines vaccine hesitant individuals as those who may accept all vaccines, but still be concerned about them, those who may refuse or delay some vaccines, but accept others, or refuse all vaccines. Vaccine hesitant individuals are different from anti-vaccine individuals who completely refuse all vaccines and are absolutely confident in their decision. Vaccine hesitant community is the one that does not accept vaccines at the rate expected, given that services and vaccines are available. The second part of the SAGE definition says: "Vaccine hesitancy is complex and context specific, varying across time, place and vaccines". Studies used in the SAGE report indicate that there is no universal cause of vaccine hesitancy that could be applied to different contexts. There is no simple or small group of determinants that shape hesitancy in all circumstances. What's more interesting, a specific determinant may have opposite effects in different settings. For instance, higher education has been associated with higher and lower rates of hesitancy in different countries, sometimes even within one country.

This means that each country or community has its local context-specific determinants of vaccine hesitancy.

However, there have been efforts to identify and classify as many determinants of vaccine hesitancy as possible in various settings. The third part of the definition concerns precisely those determinants. According to the definition of the SAGE working group, vaccine hesitancy is influenced by factors like confidence, convenience and complacency. Confidence is defined as trust in the effectiveness and safety of vaccines; the system that delivers them and competence of health workers; the motives of the policy-makers who decide on the needed vaccines. Vaccine complacency means that individuals weigh risks of vaccines against risks of diseases that are no longer common. It exists where perceived risks of vaccine-preventable diseases are low, and vaccination is not viewed as necessary.

Finally, vaccine convenience refers to availability and affordability of vaccines, health literacy, the quality of vaccination service and its compatibility with cultural views and values. This indicates that vaccine safety concerns are only one among many other drivers of vaccine hesitancy. Therefore, it is important not to equate vaccine hesitancy and vaccine safety concerns. Another matrix developed by the SAGE working group captures the complexity of influences by arranging them in three categories: contextual influences, individual and group influences, and vaccine/vaccination-specific issues. Contextual influences refer to historic, socio-cultural, environmental, institutional, economic or political factors. For instance, organized resistance to polio immunization in northern Nigeria in 2003 was based on political opposition to the central government of that country. Individual and group influences are based on personal perceptions or influences of the social/peer environment.

For instance, people have personal perceptions about their own individual health condition, estimating the possible effects of vaccines in relation to their health condition. If a person is prone to allergies, he/she could be more hesitant about getting vaccinated, even despite medical assurance that their allergies can't be triggered by a specific vaccine. Typical example of group influences were parents who reported that their decisions about vaccination depended very much on conversations and advice from other parents or relatives when the MMR controversy was in full swing in Europe. Vaccine/vaccination–specific issues are directly related to vaccines or vaccination. Thus, linking autism and the MMR vaccine first appeared in the UK and spread from there to other European countries. Linking multiple sclerosis with the HepB vaccine was mostly a French phenomenon. Across the African region polio vaccine has been mostly in focus. This indicates that in different contexts, different vaccines could be questioned.

The main determinants of vaccine hesitancy in Europe were identified in some studies just a couple of years before the Covid-19 outbreak. At that time, it was evident that concerns around vaccine safety were the most critical factor in Europe. According to those studies, behind the safety concerns was widely present mistrust in the institutions through which information about vaccines was delivered. It was demonstrated that parents of non-vaccinated children believed that the government was strongly influenced by vaccine manufacturers. In those cases, people usually turned to other sources of information that they considered trustworthy, which were friends, family, colleagues – mostly those who didn't have the needed expert knowledge. Other reasons for vaccine hesitancy were perceptions of low risk of vaccine preventable diseases. This indicates that vaccine complacency figured as an important determinant (weighing risks of vaccines against risks of diseases that are no longer common).

However, some studies revealed that Western and Northern European countries (with the notable exceptions of France and

Italy expressed far less concerns about vaccine safety than Eastern and Southern European countries. This implies that vaccine hesitancy in Europe must be analyzed in its social, political and economic context. Thus, it can be linked to certain political and social trends. One of those trends is the rise of political populism in Europe. Both vaccine hesitancy and political populism are driven by a profound distrust in elites and experts. In Europe, populist parties predominantly come from the right, but they can also be left-wing or reject the right-left distinction. Populists divide the world into masses and elites and claim to represent the interests of the people while being antagonistic to the elites [7]. The meaning of elite varies, and it can refer to political, economic or legal elites, but also to experts. The most prominent examples were precisely Italy and France. In 2017, the Five Star Movement, a political party in Italy, raised concerns about vaccine safety and the link between MMR vaccine and autism. This caused MMR vaccination coverage to fall significantly and resulted in an increase in measles cases in 2017 [8].

In France, the right-wing Front National also raised concerns about vaccine safety and laws that make childhood vaccinations mandatory. This was a typical contextual, or political, influence on vaccine hesitancy. The suspicion towards experts and science is also a characteristic of the postmodern era and the postmodern medical paradigm which contributed to decreased trust in "expert systems" [9]. This paradigm questions the legitimacy of science and expert authority, and stresses the need for patients to hold more power. It promotes the idea of patient empowerment, exercising patient-choice and patients' rights, and also the idea of patients as critical consumers of health services and products. The postmodern era additionally saw the rise of the so-called informed patient. Internet, especially Web 2.0, have allowed users to create information and actively engage in their own care through online communities, social networking, sharing of knowledge and concerns. With access to this information diversity, patients are no longer restricted by the authority of experts [10]. Social media and networking are a typical group influence on vaccine hesitancy.

Another important social trend which influences vaccine hesitancy is the rise of the so-called 'post-truth' society. The Oxford Dictionaries chose 'post-truth' as the Word of the Year 2016 and defined it as: "Relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief" [11]. Studies have showed that Internet is used frequently as a source of information on vaccines and vaccination [12,13]. There, one can find many disturbing emotional perceptions about adverse effects of some or all vaccines. Thus, the rapid spread of fake or unsubstantiated news through online media also undermines vaccination programmes and causes vaccine hesitancy. Post-truth trend could also be viewed as a typical group influence on vaccine hesitancy. In this final part, I'm going to talk about the Covid-19 vaccine hesitancy in Europe and compare Western and Eastern regions in that respect. First, one study indicated that Covid-19 vaccine acceptance in different European countries was variable during 2020, with rates as high as 80.0% in Denmark, and as low as 56 % in Poland.

The vaccine acceptance rates were even lower in Italy – 53.7%. Second, it is important to note that Covid-19 vaccine acceptance fluctuated over time: in France, vaccine acceptance rate ranged from 62% to 77% in March/April and fell to 59% in June; in Italy, that rate was 77% in April, 70% in June and it further fell to 53% in September; in the UK, it was 79.0% in April, then rose to 83.0% in May, then fell to 64.0% in July and again rose to 71% in September/October [14]. Let's have a look at the reasons for Covid-19 vaccine hesitancy in some European countries as reported by individuals and through the matrix of contextual influences, individual and community influences and vaccine specific issues. Mostly reported contextual influences have been the lack of trust in institutions, government and/or health authorities and scepticism about the health care systems [15]. These have been depicted by statements such as: "No government will invade my body" [16] - which is very much in line with the aforementioned postmodern medical paradigm, patient choice and resistance to authority. Increased odds of vaccine refusal were found among individuals who thought the measures implemented by the government were inadequate and among those who thought the information provided by health authorities were inconsistent and contradictory.

Thus, we can see here that Covid-19 vaccine hesitancy is not just about vaccines, but also about the resistance to authority, opposition to implemented measures, or to inadequately provided information. As for individual and group influences, participants in one study frequently mentioned not wanting to be the first to get vaccinated, saying: "I am not a guinea pig". Some participants indicated that they did not wish to get vaccinated because of their physical condition, saying: "I have allergies". This confirms that a person's perception about his/her medical condition is a determinant of vaccine hesitancy during Covid-19 pandemic. Some women participants in the study expressed concerns about potential vaccine effects on fertility. Another identified individual influence was having no or little fear of illness, depicted by statements like: "Coronavirus is not dangerous for me."; "Chances that I get ill are small". Some individuals were inclined not to vaccinate until there was more knowledge on long-term side effects. Also, some participants preferred informal, traditional, and religious approaches to prevention and cure, over vaccination.

Regarding community influences, a prominent source of vaccine hesitancy has been widespread misinformation about the safety and efficacy of Covid-19 vaccines in social media [17]. This points to the influence of post-truth social trend through messages shared with friends, relatives, and other communities without confirming the authenticity of the information. The aforementioned concerns about vaccine effects on fertility were based on such widely shared rumours. Vaccine specific issues which have influenced hesitancy included concerns about the speed with which Covid-19 vaccines were authorised for use in Europe. Additionally, there were concerns about short-term side effects and about long-term side effects of vaccines. Vaccines have been considered useless by some due to the supposedly harmless nature of Covid-19, which points to the role of vaccine complacency in people's decision making about vaccination. These are mostly individually stated reasons

for vaccine hesitancy, but there are also Covid-19 vaccine hesitant communities in Europe [18,19].

For instance, surveys in the UK have indicated much greater Covid-19 vaccine hesitancy among people from some ethnic minority groups, revealing that vaccine hesitancy has been the highest among black, Bangladeshi and Pakistani populations compared with people from a white ethnic background [20]. Similarly, data have also showed lower Covid-19 vaccination rates among ethnic minority healthcare workers . The most common reasons for hesitancy among these ethnic minority groups are concerns about side effects and the long-term effects on health, lack of trust in vaccines. Among these communities there has also been a lot of circulating misinformation, which particularly adds to the historical mistrust of government and public health system in some ethnic minority groups. Trust has been affected by systemic racism, segregation and discrimination, and negative experiences within a culturally insensitive healthcare system. Vaccine rates have also been affected by access barriers, e.g. location of vaccine delivery and time [21]. This indicates that ethnic minorities are more faced with the issue of vaccine convenience.

We now slowly turn towards the issue of Western Europe vs. Eastern Europe with respect to Covid-19 vaccine hesitancy. Studies before the Covid-19 outbreak found that Eastern Europe had the lowest scores for vaccine confidence of any sub-region worldwide [22,23]. Official records regarding Covid-19 vaccination clearly show that vaccine uptake rates are much higher in Western Europe as opposed to Eastern Europe – Russia, Belarus, Ukraine, Serbia, Montenegro, north Macedonia all have less than 50% of fully vaccinated population, while vaccination rates in Western Europe are 70% and higher. But, as already stressed, vaccine uptake rates are not an indicator of vaccine hesitancy. So, what we have to bear in mind here first is the problem of vaccine supply in Eastern European region. Some countries have low uptake rates simply because of lack of vaccines, like Bosnia, Moldova or North Macedonia. Still, this doesn't mean that vaccine hesitancy doesn't exist there. As already indicated, vaccine confidence has been particularly low in Eastern Europe. So, beside vaccine supply issue, there are context specific factors that affect vaccine confidence and vaccine complacency in Eastern European countries.

Unlike Western European countries, Eastern European countries went through the process of post-socialist transformation which started after the fall of the Berlin wall in 1989. Those post-socialist contexts are a significant contextual determinant of vaccine hesitancy in Eastern Europe [24]. Post-socialist transformation followed different paths and developments, but in some countries this process was quite painful and followed by extensive economic crises [25]. It did not bring economic and social changes that people generally hoped for. Instead, the outcomes were low living standards, widely present corruption, insecurity and general public disappointment. It was precisely in the post-socialist contexts that vaccine resistance became a prominent social problem in some Eastern European countries [26]. Wide disappointment in the results of post-socialist transformation significantly affected trust in public institutions, especially in post-socialist governments and their initiatives [27]. These countries have also seen extensive disinformation campaigns especially against the EU, or the West.

For instance, in Serbia, people started resisting and questioning the state and its institutions, and official policies, including vaccination policy long before the outbreak of Covid-19. Vaccines become associated with failings of the post-socialist state and with a corrupted healthcare system. One of the main questions that anti-vaccine activists have raised in Serbia was the opposition between mandatory vaccination in Eastern Europe and non-mandatory vaccination in Western European countries. This especially evoked historical antagonisms between eastern and western parts of Europe [28] and fuelled many conspiracy theories. One of the main narratives, or rumours, was that people, especially children, in Eastern Europe served as guinea pigs for vaccines. If vaccines were proved to be safe, then they would be distributed in Western Europe. Another dominant narrative, or rumour, is that Eastern Europe is supplied with different vaccines which are also of lower quality then vaccines distributed in Western Europe [29].

The same narratives are circulating now with regard to the Covid-19 vaccines. Therefore, similarly to Western Europe, vaccine hesitancy in Eastern Europe is based on distrust in the state and institutions, but that distrust is more extreme and it came out of specific post-socialist context. Vaccine hesitancy at least in some of these countries results from many political and social problems which emerged in the post-socialist systems. In this final part of the lecture, I wanted to stress a special importance of contextual influences on decisions and behaviour regarding vaccines and vaccination. The differences in the degree of vaccine hesitancy between Western and Eastern Europe, as well as between certain minority communities and the majority population in some Western European countries, could be mainly attributed to specific contextual determinants. In all cases, vaccine hesitancy appears to be a matter of trust which has been further eroded by social, political and economic experiences characteristic for the post-socialist context in Eastern Europe and for the conditions in which some minority communities live in Western Europe.

Vaccine hesitancy has been included on the list of top ten threats to global health in 2019 by the World Health Organization. In this lecture I especially wanted to point out its complex socio-political aspects which need to be understood in order to deal with this global problem. I hope I have given at least some contribution to your better understanding of the determinants and complexity of vaccine hesitancy in Europe.

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Conflict of Interest

No conflict of Interest.

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