

Attitudes to Covid-19 vaccines and vaccination in five Roma communities in Bulgaria

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■ The study has been carried out by the team of Open Society Institute – Sofia within the frame of the Scholarship Programme for Students in Medical Schools with the financial support of the Public Health Programme of Open Society Foundations.

The information presented in this publication expresses the opinion of its authors and does not by any means reflect the official position of Open Society Institute – Sofia or Open Society Foundations.

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■ PREFACE

The study was carried out as part of the initiative supporting medical students of Roma origin of the Public Health Programme of Open Society Foundations. It is a follow-up to the study carried out by the team of Open Society Institute – Sofia in the late 2020 in 9 Roma neighbourhoods and a village to examine the cooperation of the Roma communities in these places with the institutions during the pandemic.

No Covid-19 vaccines existed at the time and the attitudes towards vaccination were not studied. It is for that reason and due to the public discussions regarding Covid-19 vaccines that the team of Open Society Institute – Sofia decided to conduct a study focused on the attitudes to vaccines of some of the Roma communities in Bulgaria in the neighbourhoods of Kosharnik, (the town of Montana), Iztok (the town of Kyustendil), Svoboda (the town of Maglizh), Shesti (the town of Nova Zagora) and Nadezhda (the town of Sliven).

The study team would like to express their deepest appreciation to the experts, who managed to gather information about this highly sensitive topic against the backdrop of a pandemic: Alexander Rangelov, Angel Angelov, Antonia Zaharieva, Boryana Parashkevova-Simeonova, Valery Bashev and Teodor Asenov.

The English version of the report includes some updates and further accents which could not be included in the Bulgarian version, which was completed several months earlier. In particular the English version contains some additional comparisons of the situation in Roma communities with the general population concerning trust in institutions, which is one of the key factors in explaining attitudes towards vaccines and vaccination.

■ SUMMARY:

Main observations about vaccination coverage and access to Covid-19 vaccines

This report is based on data from field research among five Roma communities in Bulgaria carried out in December 2021. The research covered the Roma neighbourhoods in the towns of Kyustendil, Montana, Maglizh, Nova Zagora and Sliven. The sample used in the study is representative of the households in the five neighbourhoods in question and to a great extent of the adult population of the neighbourhoods¹ but it might not necessarily reflect the general situation in the Roma communities in Bulgaria regarding Covid-19 vaccination, more particularly regarding specific data about the share of the already vaccinated and the willingness to get vaccinated against Covid-19 in the future. However, the study covers a wide range of attitudes towards vaccines which match quite well the main motivation mechanisms known in the research literature about vaccines and vaccination. The latter fact makes us quite confident that the attitudes we registered towards Covid-19 vaccination and the main reasons offered for or against vaccination give a credible picture of the situation in the remaining Roma communities in Bulgaria and to a great extent as well among the Bulgarian population in general.

THE REPORT CONSISTS OF TWO PARTS. The first part, which is mainly descriptive, presents the main findings about the samples and the outcomes of the field study, including the discussion of special texts about vaccines, offered to the participants in the focus groups. The second analytical part applies more complex methods of analysis and the main findings are discussed in the context of a review of selected materials from reference literature about vaccines and vaccination and relevant topics related to medical ethics, perception of risk, etc.

Covid-19 vaccination rates are very low in the studied Roma neighbourhoods. As of the time of research fewer than 4% of the respondents have received at least one vaccine dose. About 5% more are the ones who declare their willingness to get vaccinated but it is not sure whether they will do it in reality. Even though our study has not been methodologically prepared to provide a full assessment of the number of Covid-19 vaccines, the latter findings show that the vaccination coverage in Roma communities in Bulgaria as of December 2021 was highly likely to have been extremely low and certainly too far away from values that would have mattered in epidemiological terms. According to data from

¹ The limitations regarding the representative nature of adult citizens are due to the difficulties of random selection and interviewing of a member of each household. The limitations are also due in general to the challenged access to certain household members who often commute or are engaged in activities outside of their homes from early morning to late night. These difficulties can be also seen in our sample in the form of a slight over-representation of women and the elderly.

the Official Information Portal on Covid-19 (<https://coronavirus.bg>), at the beginning of spring 2022 the total number of persons with a completed vaccination course in Bulgaria reached about 2 million or approximately 30% of the country's population. Vaccination rates appear to be even lower among the Roma than among the general population in Bulgaria, which are also quite low.

Against this backdrop, it is not unexpected that two-thirds of the respondents do not approve the green certificate and about 30% do not have any distinct opinion or say that they do not know, or simply do not answer. The supporters of the green certificate amount to about 7%. The latter percentage is insignificant and is actually mainly due to the great approval enjoyed by the green pass in one of the localities, where 1/4 of the respondents in the Roma neighbourhood approve of it, though the respondents without an opinion about the green pass account for the highest share of respondents (almost one in two).

More than two-thirds of the respondents do not believe that the residents in their neighbourhood have been treated in a different way from the remaining citizens of the town as regards the pandemic and Covid-19 vaccination. Still one in four respondents in the sample does not point to any manifestation of equal treatment, which is indicative of formed or confirmed perceptions of suspected discrimination towards the Roma communities during the pandemic, including with regard to vaccination.

“Yes, I believe that we’re treated differently. It has always been and it will always be like that.” (a questionnaire)

Obstacles to access to vaccines are one of the common reasons for vaccination hesitancy or refusal. Our study shows that there are no data as of December 2021 about any logistical or other obstacles to Covid-19 vaccination. There are practically no respondents who claim that they would not have been able to get vaccinated, if they were willing to do it.

General confidence in information about Covid-19 vaccines is extremely low. The majority of the respondents do not believe anyone with regard to information about vaccines. Nevertheless, GPs, the television, the Internet and pastors are among the major information sources about vaccines, which enjoy relatively lower mistrust. However, it does not mean necessarily that these information sources facilitate support for vaccination. This is by far not the case. Quite a few of the participants in the study experience a sense of confusion and uncertainty about the information flow overwhelming them. Against this backdrop the established opinion is that the majority of sources, regardless whether trusted or not, are against vaccination. There is a wide consensus about the latter opinion, which proves that the official institutional sources of the Bulgarian state have been either relatively under-represented in the huge information flow or have lost the battle for the attention and trust of the audience in the communities in question.

The majority of the participants in the study claim that they would not get vaccinated against Covid-19 under any circumstances, even if vaccines became compulsory². A small number of the respondents would get vaccinated if the vaccine was required by an employer or mandatory in order to travel abroad. These are also the main reasons for the decision pointed out by the small number of vaccinated and in some cases the employers who set such a requirement were also foreign-based.

“I’m not going abroad and I don’t need a vaccine.” (a questionnaire)

The high rate of disagreement with the recommendations of health authorities goes hand in hand with a high rate of trust in almost all known objections against vaccines and vaccination. The most important objections, inter alia, presented in the report are as follows:

- 1) leading conspiracy theories surrounding the process of vaccine development, production and dissemination by secret societies, which, apart from corrupt elites, have been joined by governments, health authorities and international organizations;
- 2) downplaying the threat and dangerous health implications of diseases preventable with vaccines;
- 3) spread of false or misleadingly interpreted information about harmful side-effects of vaccination.

Prior to raising these objections to Covid-19 vaccines, they have been used in practice about all vaccines applied on a mass scale that undoubtedly protect from hazardous preventable diseases. The latter fact puts on the line confidence in other vaccines that can be potentially undermined. The findings of our study have not established such a risk in the examined communities. The remaining vaccines, apart from Covid-19 vaccines, continue to enjoy a high level of confidence. However, this confidence is not a given. The World Health Organization (WHO) has been warning for at least 5 years, the last time being in early March 2022, that the outbreak of a new measles epidemics in the Western Balkans is only a matter of time due to the dramatic drop in vaccination coverage. Bulgaria faced a deadly measles epidemic in the Roma communities in 2010 and smaller outbreaks afterwards. Therefore, although the last epidemic wave has faded away, the lessons learnt from the deadly Covid-19 epidemic can help restore confidence in vaccines that has declined over the last decades under growing attacks from various anti-vaccination movements and as a result of the exponential growth of heterogeneous information flow known as *infodemic*.

Our data as a whole point towards strong information vulnerability of the studied Roma communities and low willingness for vaccination is just one of manifestations of this vul-

² It has to be pointed out, though, that the participants in the study do not share a common understanding of what “compulsory” vaccines mean. The latter lack of unity may be due in part to misunderstanding stemming from the way such information has been communicated by health authorities. “Compulsory” vaccination today is not practically compulsory anywhere in the world. Nowhere is a truly mandatory vaccination applied and very rarely are penalties for criminal offence imposed in the event of vaccination refusal. The mandatory nature of vaccination is in the form of certain restrictions or administrative penalties imposed. Therefore, restricted access to places and services is what mandatory vaccination refers to (WHO, 2021). In this sense the green certificate as per the definitions used in the reviews of vaccination policies prior to the pandemics is the type of document connected with the introduction of mandatory vaccination.

nerability. The content of widely distributed conspiracy theories directly undermines trust in the very public health protection procedures and institutions in Bulgaria and worldwide, presenting them as inefficient and incompetent at best and covert and malicious at worst. Trusting such theories can potentially breed easily mistrust of any health or other policy.

The low degree of trust in information about the Covid-19 vaccines is among the main factors behind low vaccination coverage: more than half of our respondents do not trust anyone when it comes to vaccines for Covid-19. The vast majority of respondents do not trust anyone when it comes to vaccine information. The General Practitioners, television and to some extent internet publications, relatives and religious leaders are the main sources of information about vaccines, causing relatively less distrust. These sources of information, however, in many cases do not support of vaccination. The infodemic flow flooding the participants in the study has caused a dominant feeling of confusion and uncertainty. The data from the survey confirm the results from a previous study by the Institute „Open Society – Sofia“ – „Covid-19 in Roma neighborhoods in Bulgaria (March – December, 2020)“, in which also about half of the surveyed respondents in 10 Roma communities admit that they don't trust anyone when it comes to information about Covid-19.

It seems that the Roma communities studied have in general a good access to the Bulgarian information space, including the mainstream media and the social media and thus the vulnerability present can be understood as a projection of the general state of the communication environment in Bulgaria³. The latter space is further extended with local communication channels through the network of social contacts and the influence of respected opinion leaders in the relevant communities. The overall effect of this heterogeneous and abundant communication is a high level of disorientation caused by the available information. The main health experts and institutions are set against other experts that defend contrary theses. Many of the participants in the study have been practically incapable of making a decision about vaccination amidst such an information environment.

Due to cross-border mobility and contacts with relatives and acquaintances in other countries, mainly in the EU, there are quite a few people in the Roma communities in question who have been familiar with the situation regarding the Covid-19 pandemic and vaccination outside Bulgaria as well. Our sample does not allow us to make statistical generalizations but our observations still show that it is the people travelling abroad and those who have family and friends abroad that are among the ones most willing to get vaccinated. The countries visited by the members of Roma communities looking for better jobs and a better life have much higher vaccination rates than Bulgaria. These observations make us conclude that vaccination coverage depends to a great extent on the institutional environment and trust in it.

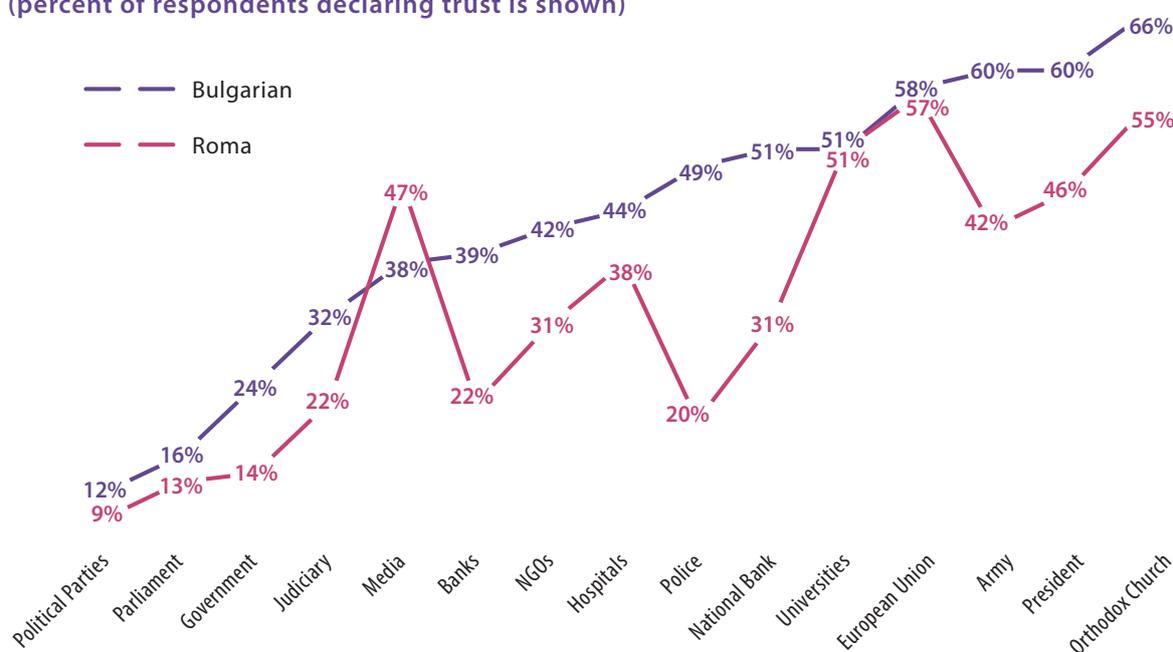
Issues related to low trust in health institutions and institutions in general come to the fore. Our previous study carried out at an earlier stage of the Covid-19 pandemic, which the current report refers to, suggests that low trust can also stem from the restricted access of Roma communities to healthcare and other important services as well as from discrimination and hate speech that also hamper building trust.

³ Still, it has to be noted that some of the Turkish-speaking respondents in the communities in question also follow the mainstream media in our Southern neighbor. This study has not established any specific influence of access to this communication channel on the attitudes towards Covid-19 vaccination which is indicative of the limited potential for influence of the mainstream media compared to other information sources.

Due to the lack of directly comparable data, it is difficult to conduct a systemic comparison with the general population or ethnic Bulgarians in terms of attitudes towards vaccines for Covid-19 and the willingness to get vaccinated. We can use however some indicative data, which outline the general patterns.

One of the plausible explanations for the low vaccination coverage against Covid-19 in the Roma communities is the high degree of distrust towards public institutions. An omnibus survey, conducted by the Open Society – Sofia Institute about a year and a half before the start of the pandemic, shows that compared to Bulgarians, Roma have a lower degree of trust to all institutions but the media: 47% among Roma trust the media compared to 38% among Bulgarians. The media in Bulgaria however are shown in our survey to play an ambiguous role during the Covid-19 pandemic, giving floor to prominent opponents of vaccinations.

TO WHAT EXTENT DO YOU TRUST THE FOLLOWING ORGANIZATIONS/INSTITUTIONS?
(percent of respondents declaring trust is shown)



Source: OSI-Sofia, Omnibus survey, March 2018

Both among Roma and Bulgarians, trust in the government – the main institution responsible for vaccination policy – is extremely low (14% among Roma compared to 24% among Bulgarians). These levels remain largely unchanged and according to the results of a Nationally Representative Public Opinion Survey conducted among the population aged 18 and over in October 2021 (Trust in NGOs in Bulgaria 2018-2021).

The link between mistrust of institutions and low vaccination coverage against Covid-19 is testimony to the need for significant improvement in communication between public institutions and Roma communities and long-term investment in building mutual trust. The fastest and most effective solution to the challenging task of restoring trust runs through the building or restoration of bridges between local authorities (mayors, councilors, administrators) and neighborhoods with a predominant Roma population. In this process educational, social and health institutions (including health, educational and labor mediators, social workers and doctors) are to play a much more active role than they do now.

■ BRIEF METHODOLOGICAL NOTES AND THE SAMPLE PROFILE

The study underlying this analysis was carried out in December 2021 in five Roma neighbourhoods located in different towns in Bulgaria. It took place during the 4th wave of Covid-19 in Bulgaria and ahead of the imminent arrival of the 5th wave caused by a new virus strain.

The study covered 251 respondents, approximately 50 per each neighbourhood included in the study. The towns and neighbourhoods were selected based on typological considerations including the following: neighbourhood size, coverage of towns from different parts of the country and information about the course of the pandemic and the related measures which we obtained during the study carried out in the same neighbourhoods prior to the marketing of the approved Covid-19 vaccines⁴. This study aims mainly at opinion polling, analyzing in-depth attitudes to Covid-19 vaccines and vaccination readiness. The quantitative data are quite definitive and they coincide in practice with the experts' observations about Covid-19 vaccinations in Roma communities. We believe that the data provides credible guidance about the main indicators related to attitudes to Covid-19 vaccines and vaccination in Roma communities in Bulgaria in general. The questionnaire developed combines open-ended and close-ended questions using the following approach: first, open-ended questions were asked about each topic to gather as authentic and spontaneous information as possible, then closed-ended questions about the same topic were asked as a summary or a more systematic review of the topic so that the questions appeared to the respondents as part of an ordinary conversation, as best as possible.

Apart from the questionnaire used, focus group discussions took place in each of the five locations with a small number of participants (7–8) from each community. The discussions aimed at obtaining more in-depth information about the main issues, also raised in the questionnaire, and following how the arguments of the participants evolved in a dialogic environment. The latter was important as attitudes to vaccines are also greatly influenced by the social context of communication and receiving information.

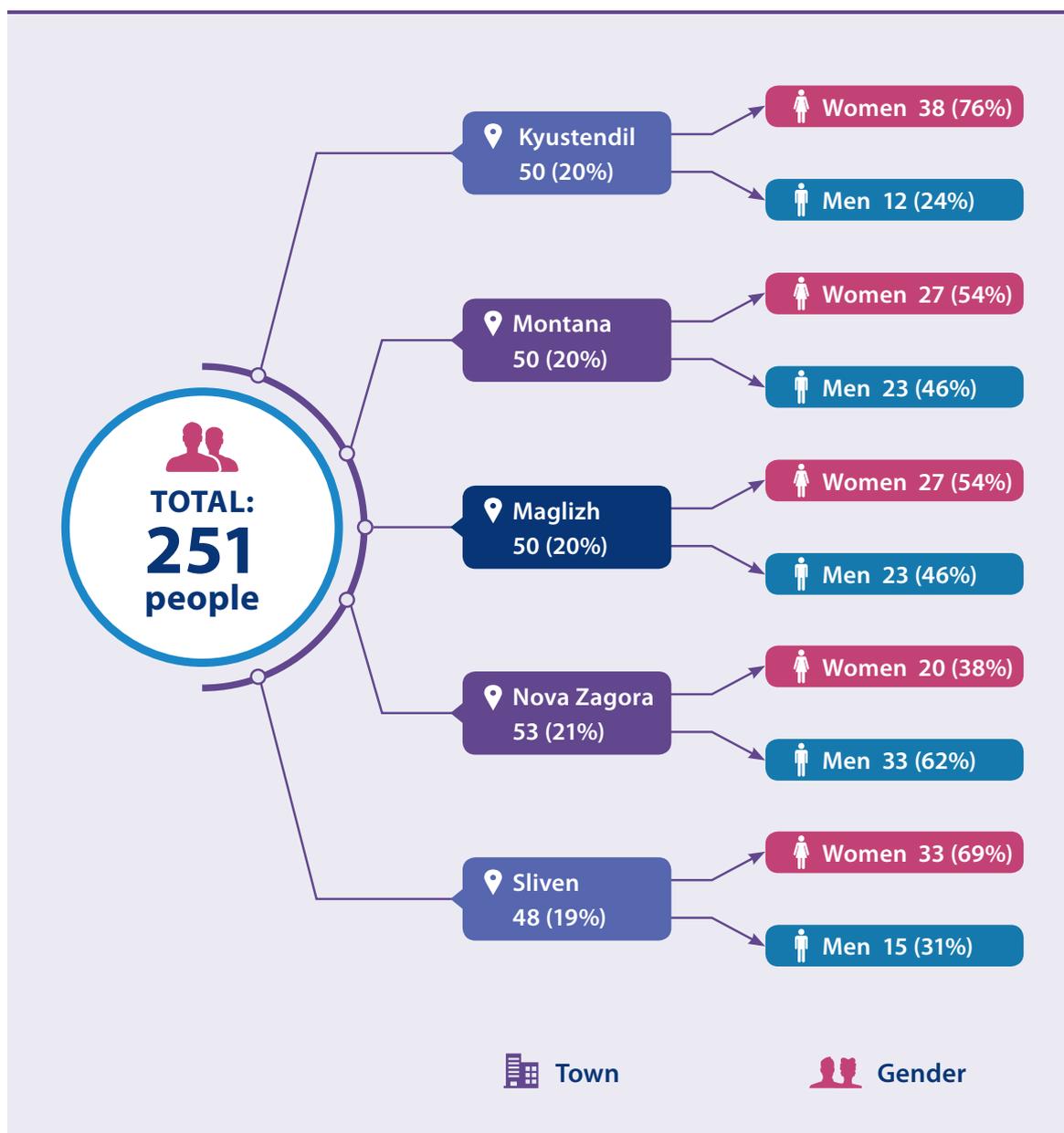
The study also relied on in-depth interviews with leading experts and people with great influence over the public who are involved with health in Roma neighbourhoods, public vaccination policy or attitudes towards vaccines and vaccination. Such people are doctors, health mediators and pastors from various churches. The in-depth interviews had a dual goal. On the one hand, they facilitated interpretation of the findings from the ques-

⁴ More information about the initial selection of the neighbourhoods can be found in the report from the study referred to (Grekova et al., 2020), available at https://osis.bg/wp-content/uploads/2021/04/Covid_Roma_Apr_2021.pdf, and its translated version in English (Grekova et al., 2020), available at <https://osis.bg/?p=3951&lang=en>

tionnaires and focus groups held. On the other hand, they provided valuable information about the opinions of the interviewed people who could potentially influence vaccination decisions and attitudes towards vaccines of a wide range of people with their professional standing and authority.

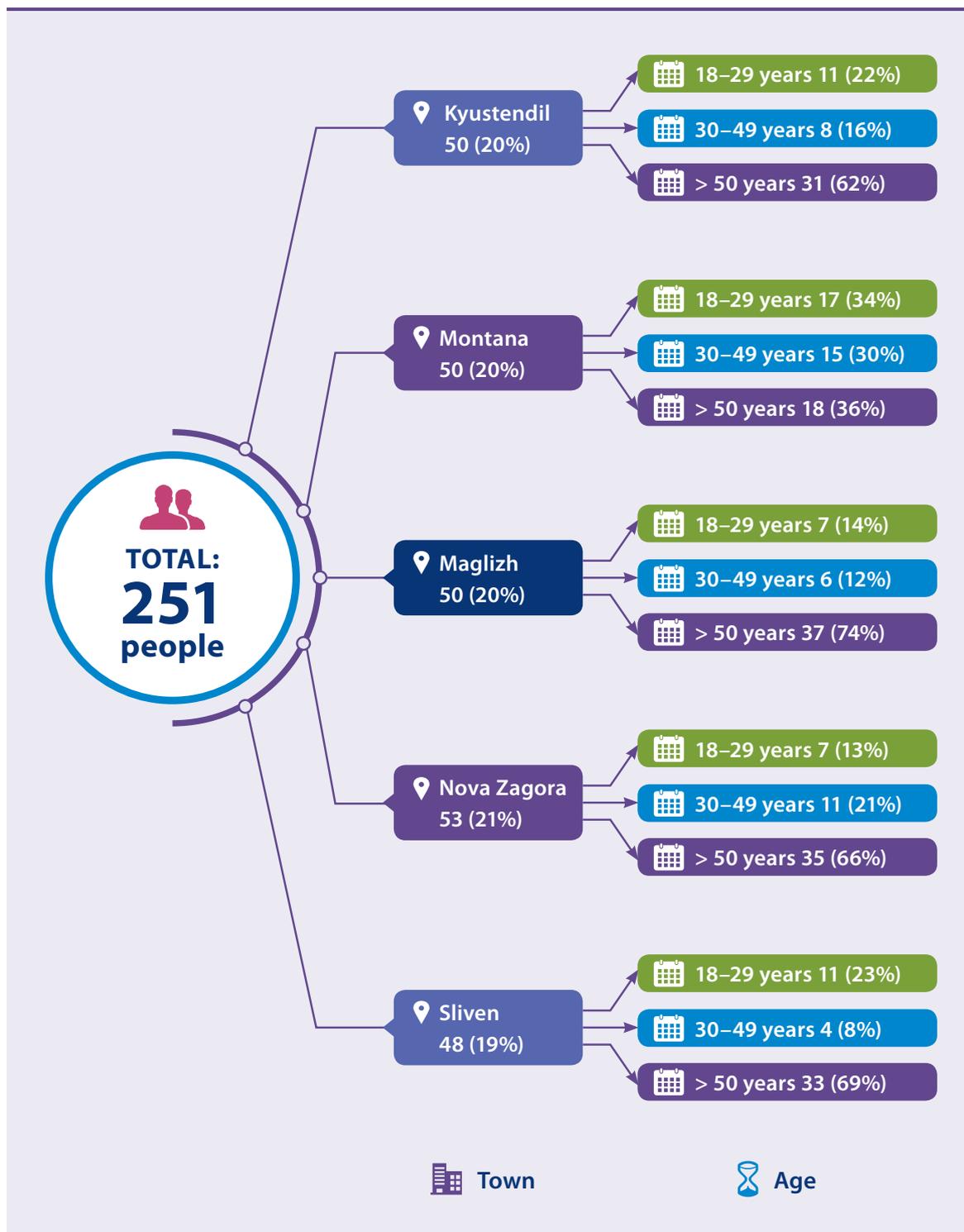
The respondents in the study cover a wide range of demographic characteristics, which guarantees that the opinion polling observations are sufficiently exhaustive.

Fig. 1. Distribution of the respondents by towns and gender



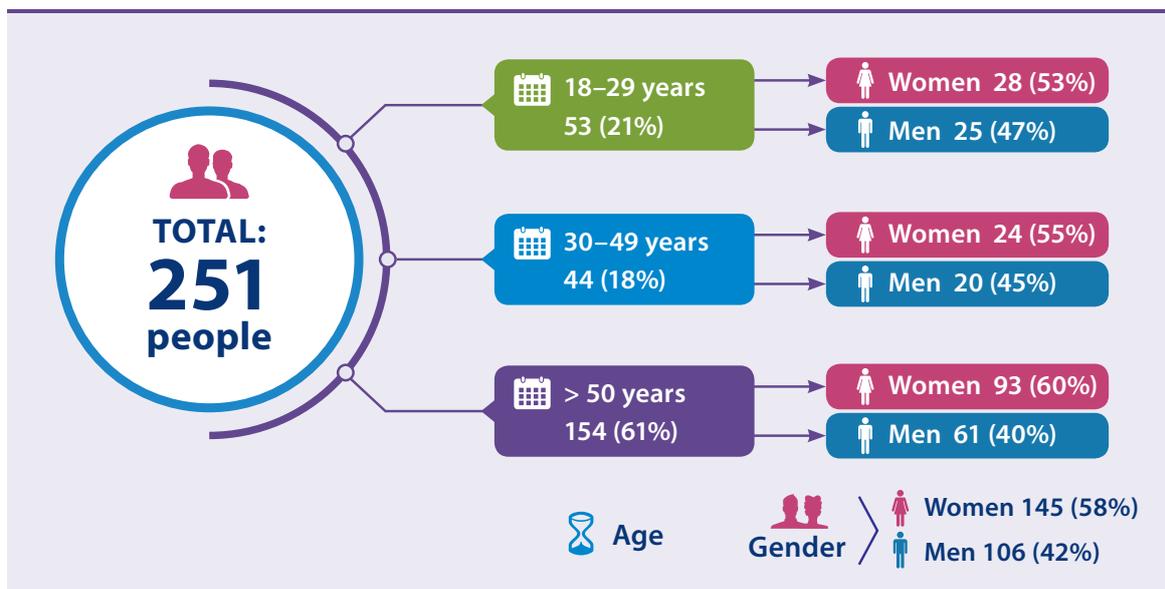
The sample in general is well-balanced by gender. More considerable deviations can be observed in two of the towns, which is not uncommon for samples this size, also given the limitations of the selection of respondents in the households.

Fig. 2. Distribution of the respondents by towns and age



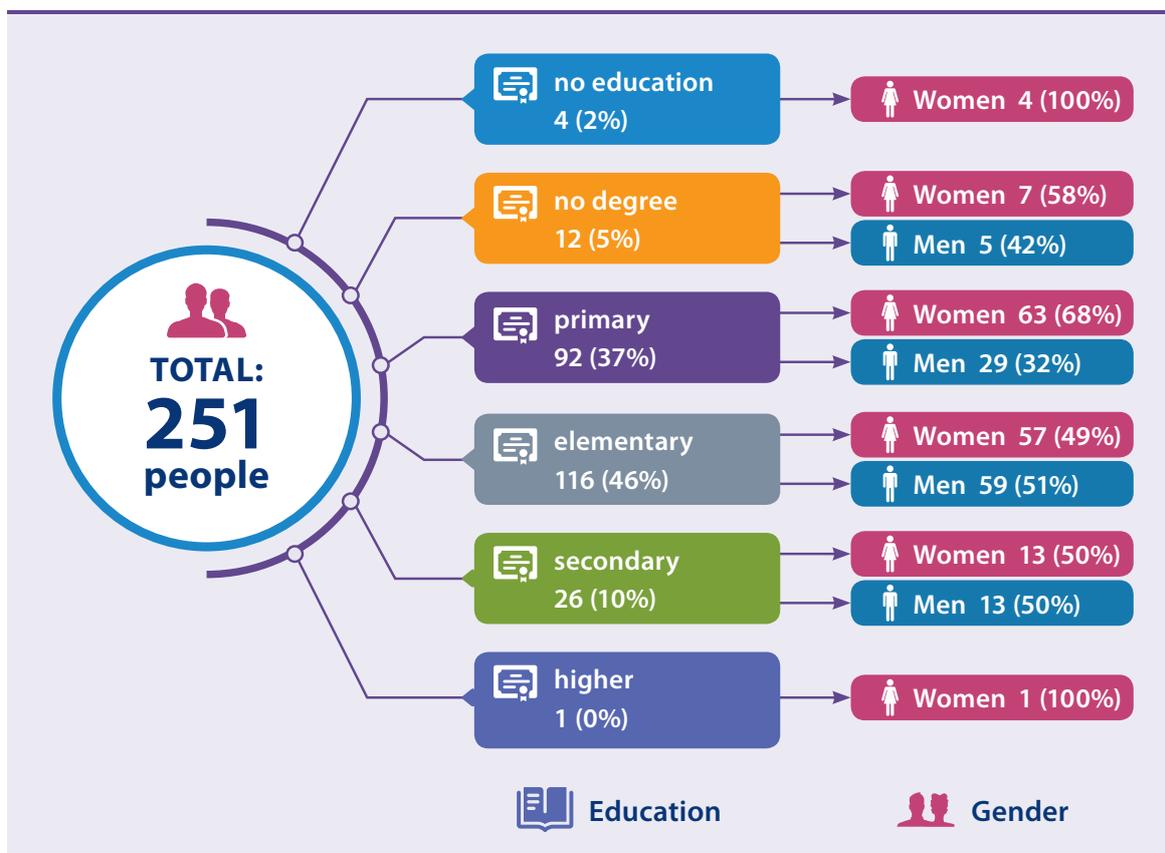
The sample shows certain deviations regarding the age structure of the Roma population. The sample covers a considerably older population from the structure observed in the last census and in surveys with more significant representative samples of the Roma population.

Fig. 3. Distribution of the general sample by age and gender



The age and gender distribution in an aggregated form is presented in Fig. 3.

Fig. 4. Distribution of the respondents by education and gender



The distribution of the respondents by education reflects well the education structure of the Roma population. There are sufficient members of the two genders within the better represented education levels of the sample.

■ MAIN FINDINGS OF THE STUDY REGARDING ATTITUDES TOWARDS COVID-19 VACCINES

The main findings of the study report very negative attitudes in general towards Covid-19 vaccination and high levels of mistrust in vaccines.

Fig. 5. Comparison between the sense of danger from contracting Covid-19 and from vaccination

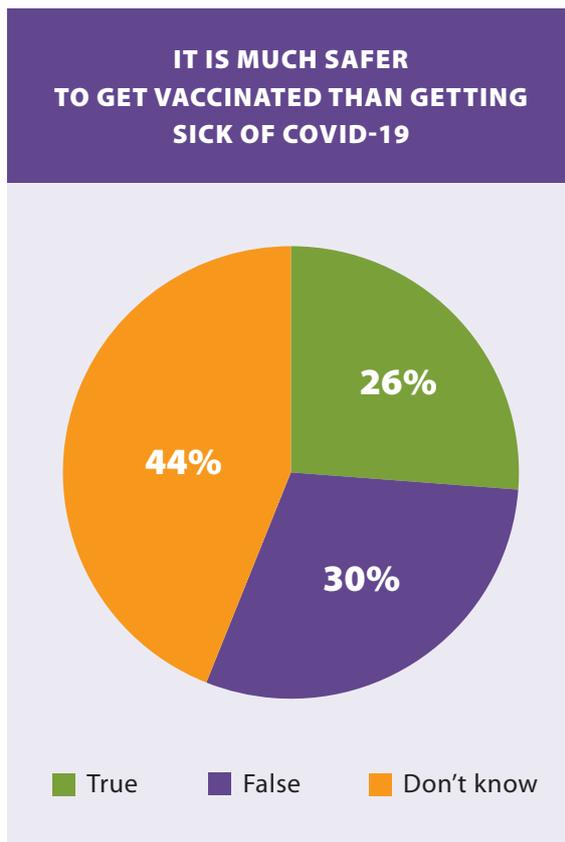


Fig. 6. Subjective assessment of the Covid-19 danger



The respondents who believe that it is safer to get vaccinated are fewer than the ones who do not, i. e. the respondents who believe that it is safer to get infected and recover from Covid-19 (Fig. 5). The majority of the respondents do not have an opinion about this key question, which is decisive for their choice whether to get vaccinated.

The statement that Covid-19 is a life-threatening disease, which has at the same time long-term implications for health (Fig. 6) has to do with part of the assessment whether it is worth getting vaccinated. The respondents were offered the working of the statement published officially by WHO and repeated in one form or another by the health authorities and bodies responsible for the vaccination policy in different European countries, including Bulgaria. Almost half of the respondents do not have a formed opinion about this issue and the opinions of the rest in favour or against this statement are distributed equally overall. The latter means in practice that official opinions struggle in winning public trust. Quite a few of the respondents believe that Covid-19 is not such a dangerous disease as WHO claims and that it does not have serious long-term implications for human health. The people who have not formed their opinion either are completely unaware of the arguments about the threat of Covid-19 or are aware of the arguments but cannot decide which of them are true.

Fig. 7. Agreement with the statement about lack of information about the ingredients of Covid-19 vaccines

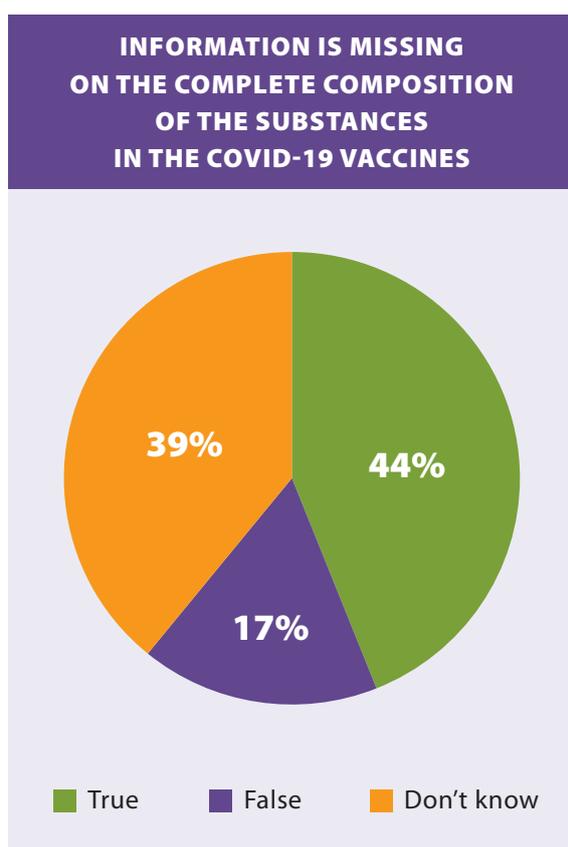
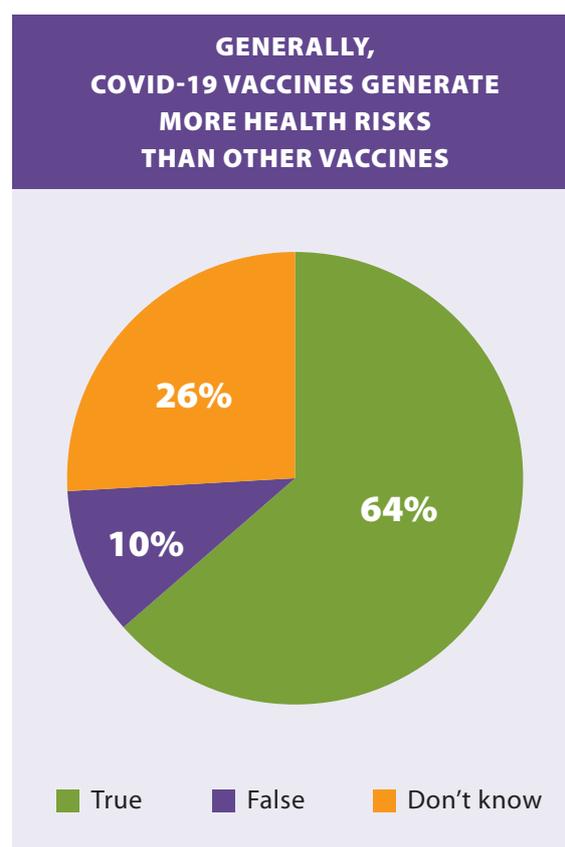


Fig. 8. Agreement with the statement that Covid-19 vaccines come with health risks



Quite a high number of people believe that there is no information about the full list of ingredients of Covid-19 vaccines, i.e. almost half of the respondents: 17% are the respondents who disagree with this statement (Fig. 7). It seems that the respondents are convinced that this is the case not simply because they say that they themselves do not have access to the list of ingredients of the vaccines. It refers to the fact that this information is not accessible in general to independent specialists, for example, or potential con-

sumers with knowledge of chemistry who would have understood the list of ingredients included in the vaccines. This is a very common false claim that can be seen on a global scale and is quite strong in the social media. The data show at the same time that the responsible public institutions have not managed to provide a sufficiently wide access to such information in a comprehensible language for the non-professional audience and have not managed to contradict the false statements widely spread, which contribute to mistrust of vaccines.

Approximately 2/3 of the respondents consider Covid-19 vaccines to be more dangerous and involving greater health risks than other vaccines not specifically mentioned. "Other vaccines" in this case refers to the vaccines used on a mass scale that are familiar to the respondents, as seen from the open-ended questions in the questionnaires and the focus groups. These are mainly the vaccines from the official immunization calendar administered mainly to children and some familiar vaccines such as the flu vaccines which are not used by many people in Bulgaria but are mentioned and discussed often in the media, for instance, when in the event of an imminent flu wave elderly people with chronic diseases are recommended to get vaccinated. The attitude registered about this question is highly unfavourable for the Covid-19 vaccination campaign.

Fig. 9. Agreement with the statement that Covid-19 vaccination is not recommended for many chronic diseases



Fig. 10. Agreement with the statement that Covid-19 vaccines have dangerous side-effects



There is a general agreement with the statement that Covid-19 vaccination is not recommended for many cases of chronic disease. The respondents agreed readily with this statement, which in general is not true⁵. WHO and the official health authorities responsible for general recommendations claim that Covid-19 vaccination is recommended to most people with chronic diseases for the very purpose of protecting them from the disease. Hardly any evidence can be seen in our study that these messages have reached the communities in question.

The statement that vaccines have dangerous side-effects enjoys a strong support. It is believed to be true by 3/4 of the respondents. The questions asked cover both immediate side-effects of vaccination that are temporary and short-lived and potential long-term implications for health. It is not certain that such differentiation matters for some of the respondents. They rather express their general sense of danger of Covid-19 vaccines.

Fig. 11. Agreement with the statement that Covid-19 vaccination is associated with great health risks

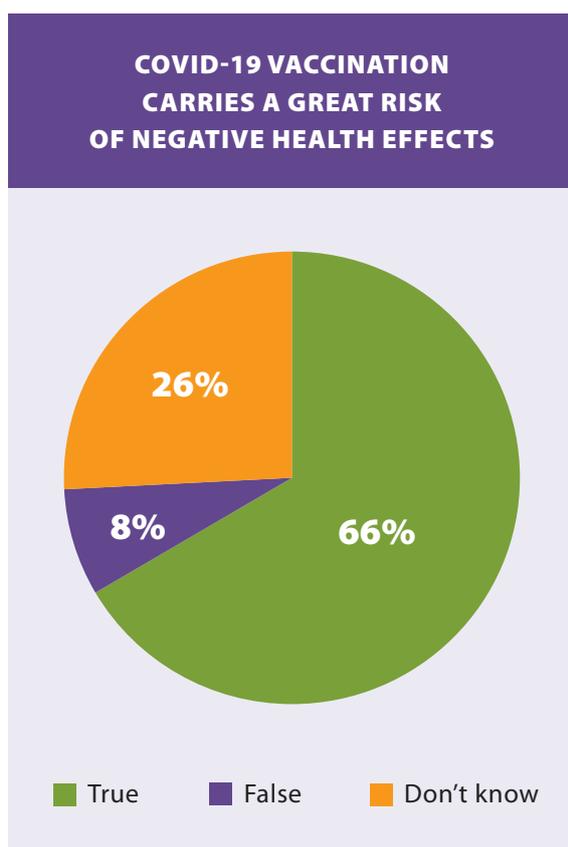
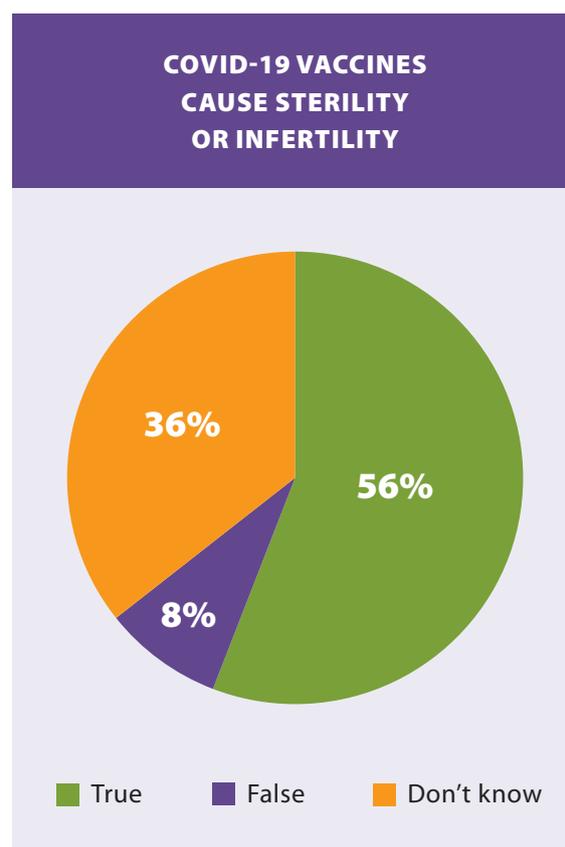


Fig. 12. Agreement with the statement that Covid-19 vaccines cause infertility



⁵ For example, the BOLD campaign with its calls made by leading Bulgarian specialists in chronic diseases for Covid-19 vaccination, <https://boldbg.net/2022/01/07/nasarchavane-na-vaksinatsiite-sreshtu-kovid-19-pri-patsienti-s-nyakoi-hronichni-zabolyavania/>. The official WHO recommendations about that issue can be seen in a summary on <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/covid-19-vaccines/advice>

At the end of the day 2/3 of the respondents are convinced that Covid-19 vaccination comes with great health risks. The findings from the open-ended questions and the other tools used show that the suggested risks refer to both immediate symptoms after vaccination and long-term consequences such as infertility, chronic conditions and diseases, exacerbated or caused by vaccines. Many of the respondents believe that vaccines do not come simply with a risk but with a guaranteed universal harm.

“They vaccinate people to make them sick.” (a questionnaire)

„Every vaccinated person dies or becomes ill.” (a questionnaire)

“The vaccinated live for 5 years.” (a questionnaire)

“The vaccine is a poison, they’re injecting a poison.” (a focus group)

A very common belief is that Covid-19 vaccines cause sterility or infertility; only 8% of the respondents believe that the statement is not true, even though this statement about Covid-19 vaccines, which has been used to a greater extent in campaigns against other vaccines, is not as widespread as it seems. It is worth pointing out the great importance of the reproductive capacity and the reproductive role of women in the communities in question, which make this topic particularly sensitive. The latter heightened sensitivity towards the threat of harming the reproductive capacity has been also registered during the focus group discussions as well as in spontaneous comments to the open-ended questions in the questionnaire.

More than half of the respondents are convinced that Covid-19 vaccines contain ingredients that have a proven harmful effect on health. The emphasis on the statement about the harmful ingredients in vaccines being „proven“, of course, goes hand in hand with the thesis about concealing information about the vaccines that we commented above. In this case the respondents accept simultaneously statements against vaccines that mutually contradict each other without sensing any discomfort. Thus, many respondents believe at the same time that the composition of the vaccines is not known and that vaccines

“The people who get vaccinated cannot have children”. (a questionnaire)

“It is not by chance that these billionaires came up with such a plan to cut the population growth. They say that if they want to get small children vaccinated, they want to cut their future offspring.” (a focus group)

Fig. 13. Agreement with the statement that Covid-19 vaccines contain harmful substances

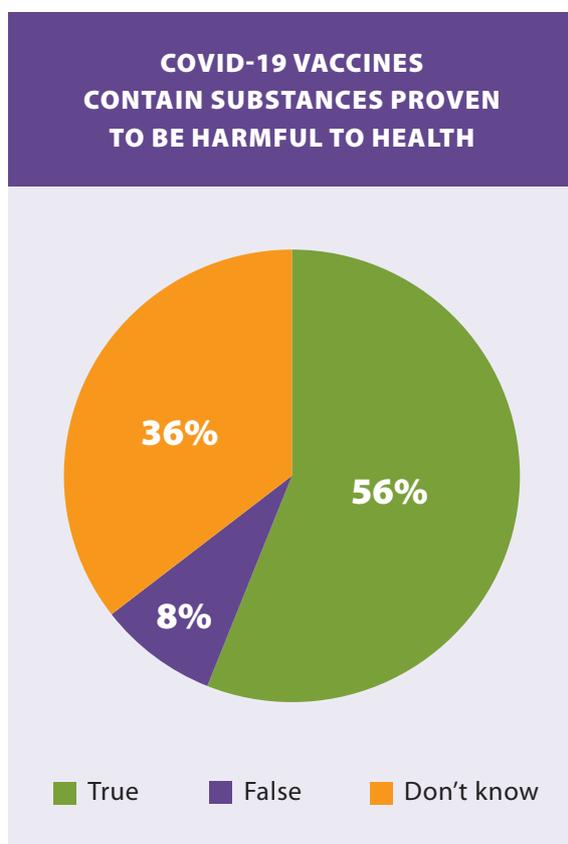
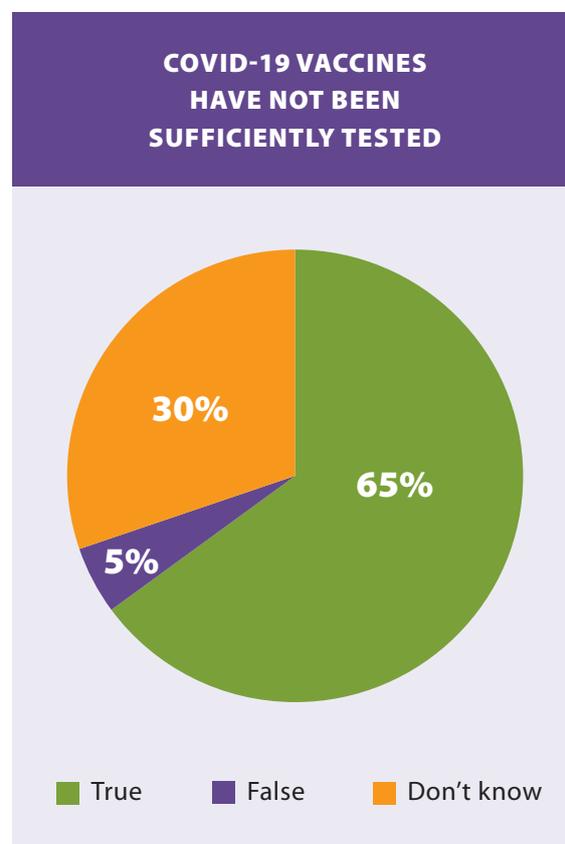


Fig. 14. Agreement with the statement that Covid-19 vaccines are not sufficiently tested



contain ingredients that have a proven harmful effect on health. The co-existence of such statements is logically consistent only in the context of special conspiracy theories, i. e. for instance, the information about the ingredients of vaccines is intentionally concealed but “insiders” have leaked some of this information or someone “managed to get” to it and this “story” might come up in various versions. The belief that vaccines are used as a biological weapon to destroy and reduce population growth is a particularly important consequence of the statement that information is intentionally concealed about the harmful ingredients of vaccines. The Roma, who in the Bulgarian political and “expert” discourse, are quite often referred to as a demographic threat, could be particularly sensitive to such conspiracy theories.

The statement that Covid-19 vaccines have not been sufficiently tested has been almost universally accepted. In fact, this statement might be the most common argument against vaccination in general, not just Covid-19 vaccination. However, in the case of Covid-19, this argument has got stronger by the accelerated production and authorization of vaccines, an argument, which has been pointed out by many respondents.

Approximately half of the respondents do not believe the statement that the Covid-19 virus is not dangerous. Only one-fifth of the respondents consider it harmless. The belief that a disease is not dangerous or that its danger has been excessively exaggerated is just one of the possible reasons to refuse vaccination. The attitude to Covid-19 in the

Fig. 15. Agreement with the statement about the harmless nature of Covid-19

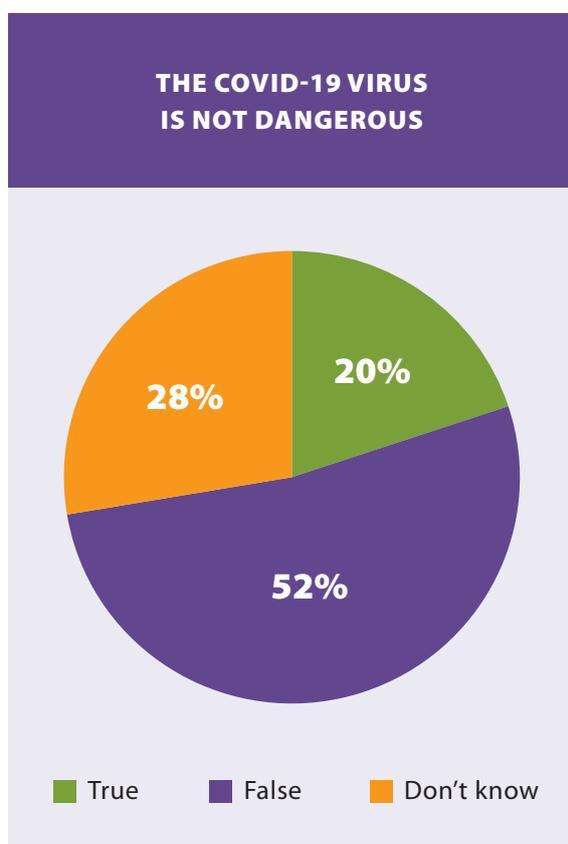
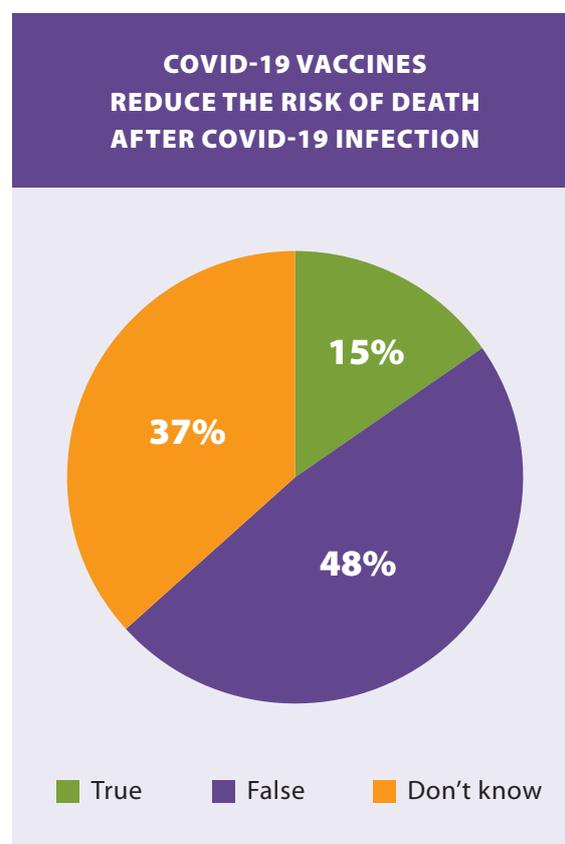


Fig. 16. Agreement with the statement about the efficiency of Covid-19 vaccines



communities in question is highly contradictory. The majority of the respondents admit their confusion about the issues related to vaccines and Covid-19, which they attribute to excessive and contradictory information. What can be seen simultaneously in both the focus groups and the questionnaires are statements admitting fear of the disease and the risks involved and statements about its low incidence. Generalizations about the absence of many infected with Covid-19 come together with stories about the overwhelmed hospitals and patients who died without receiving sufficient care.

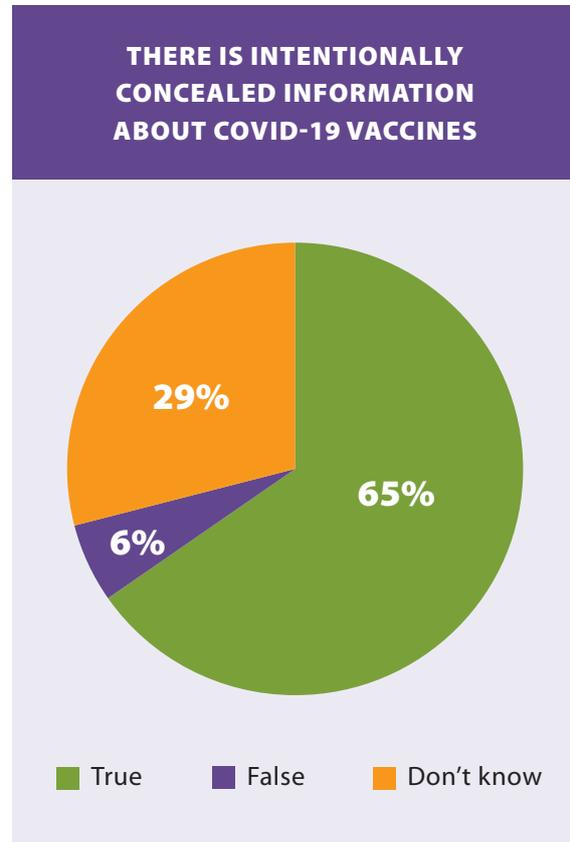
Half of the respondents are not convinced that Covid-19 vaccines reduce the risk of death after getting infected with Covid-19 and 1/3 of the respondents do not have an opinion about the issue. 15% are those who agree that Covid-19 vaccines reduce mortality risk, though some of them, as they have admitted, are not vaccinated against Covid-19.

One of the main conspiracy theories used by the anti-vaccination campaigns enjoys a particularly great support, namely that the development, production and use of vaccines only aim at boosting the profits of pharmaceutical companies. This theory is naturally linked to the conviction that vaccines are not necessary and useful at best. At the same time the answers to the other questions show that the majority of respondents who believe in this conspiracy theory stick to its more radical version, which says that vaccines are used to gain profit even though they have been proved (or at least alleged) to be harmful or intentionally insufficiently tested.

Fig. 17. Agreement with the statement that Covid-19 vaccines only aim at boosting the profits of the pharmaceutical industry



Fig. 18. Agreement with the statement about intentionally concealed information about Covid-19 vaccines



“Just like everyone else, I also lost trust in everything and everyone. I refer to God’s Word, as God said that lawlessness will abound. And this is what we see in reality. Unfortunately everything is done for money ... and the population has to be reduced.” (a focus group)

“It has been devised – the coronavirus or the pandemic. This is what the rich did, the billionaires. Do you know how much money did they make?! How many billions did they win?! Especially the Americans... they devised it and became 200 times richer billionaires.” (a focus group)

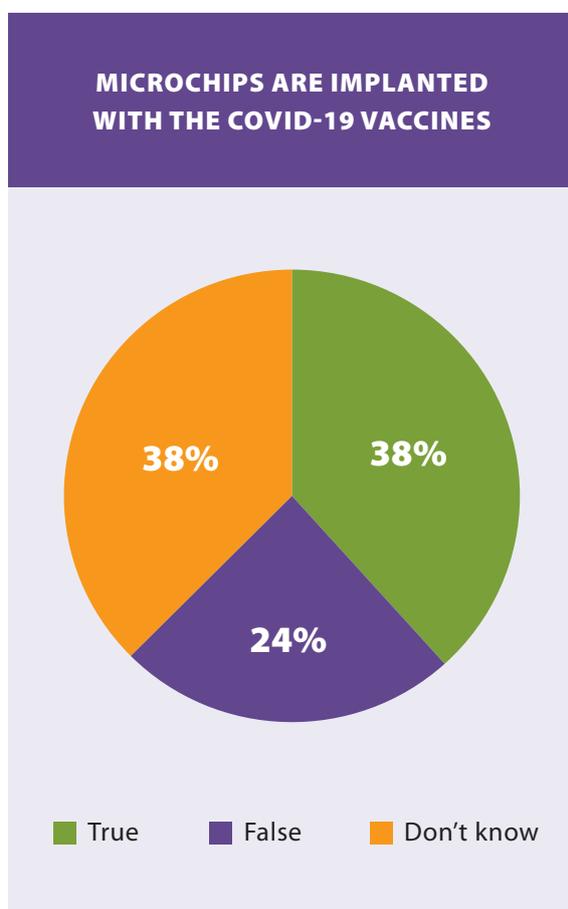
“It has to do with money, it can be seen that they would do anything for money.” (a questionnaire)

“There is no need of vaccines. Everything is done for money.” (a questionnaire)

“A business for doctors.” (a questionnaire)

Approximately 2/3 of the respondents are also convinced that there is information about Covid-19 vaccines that is intentionally suppressed. The latter conviction plays a significant

Fig. 19. Agreement with the statement that Covid-19 vaccines implant microchips



part in all widespread conspiracy theories about vaccines, which explains why people firmly believe in it.

The statement that Covid-19 vaccines implant microchips is specific for these vaccines. This statement is not part of the serious anti-vaccination campaign that relies on more conventional messages. The theory about the tracking microchip most likely originated from a video on Facebook with a compilation of statements made by celebrities associated with conspiracy theories. The video contains staged or taken out of context statements of famous people, associated with the malicious use of illegal technology to track people⁶. There is no evidence that the participants in the study have been in direct contact with any of the primary sources of the conspiracy theory or that they have knowledge of the details of its description or reasons. It seems that it is only the statement about implanting microchips that has reached them via various channels, which is accepted as a proven fact due to its widespread dissemination.

We also included in the study the statement that has gained popularity in Bulgaria that some of the Covid-19 vaccines have expired

shelf life. This statement is not part of the objections of principle against vaccines and vaccination but an attempt to show as part of a political tug of war that the vaccination campaign in Bulgaria has not been managed well. This statement could also discourage some of the people who are not sure whether they want to get vaccinated. The findings of the study show that the majority of the respondents have paid attention to these statements and have added them to the other, more serious reasons for refusal to get vaccinated against Covid-19.

⁶ They include Bill and Melinda Gates and Jack Ma, the chairman of the Chinese e-commerce giant Alibaba. These claims are combined with information about plans to develop a Covid-19 vaccine tracking system to ensure that the vaccine shots have been really given and that their shelf life has not expired. The system was supposed to be based on the labels of the vaccine syringes but not to be injected in humans (Fact Check, 2020).

■ COVID-19 VACCINES IN THE CONTEXT OF SOCIAL COMMUNICATION AND OBTAINING INFORMATION

The last part of this section presents some important observations obtained from the qualitative tools used to illustrate the arguments for and against Covid-19 vaccination in the context of social contacts and communication between people. Communicating and persuading the public are among the main tools used to obtain information and making or promoting and upholding already made decisions.

The focus groups carried out within the study discussed one after the other 5 texts about Covid-19 vaccines. The texts were based on original media materials that have been re-worked for the purpose of the study by summarizing and deleting the names of personalities, known to the respondents and other details whenever we wanted to avoid the influence of preliminary attitudes to the personalities in question such as accepting them as an authority or, in contrast, as a source of false or misleading claims by default. The texts include both more comprehensible statements as well as statements with scientific jargon unfamiliar to non-specialists such as the chemical names of unpopular chemical compounds. We chose this approach because samples of the types of texts we chose to use could be seen in the media, including in the media promoting scientific information, and in the social media.

TEXT 1

*Covid-19 vaccines are the most tested vaccines in human history. The vaccines administered to babies between the 1st and the 23rd week have been tested on 2000 people. Covid-19 vaccines have been administered more than 7 billion times, they are tracked in phase 4. The conspiracy is for a person to refuse to get vaccinated and to be left in the vaccine control group. Bulgaria has built a huge vaccine control group and we can use it to follow what happens to the unvaccinated people. The guinea pigs are the unvaccinated ones and not the vaccinated ones. **All available Covid-19 vaccines are known to protect against severe disease, complications and death.** No vaccine in the history of medicine so far causes infertility.*

The first text is a compilation of statements about the safety of Covid-19 vaccines made by specialists and targeted at the general public. The statements support the official positions about Covid-19 of prominent international organizations and institutions responsible for global health and the approval of pharmaceutical products, including vaccines.

It is interesting that some of the participants in the focus groups differentiate between whether the statement is “true” and whether its content is credible. It can be seen from the context that the statement should be considered as “true” if it has been really made and if we can assume that it has been made by people, who are said to have made it. It is a different matter if the facts in the statement are true and the arguments are well presented.

The text proposed for discussion has a statement that indirectly and implicitly refers to claims made by the opponents of Covid-19 vaccines, namely that the ones who get vaccinated with “untested” vaccines take part in a dangerous experiment and play the role of “guinea pigs”. One of the experts indirectly referred ironically to this anti-vaccination claim through the counterclaim that the “guinea pigs” are the unvaccinated because they check what will happen if they get infected without being vaccinated. A participant in one of the focus groups, who most likely supported the thesis about the dangerous experiment with Covid-19 vaccines, interpreted correctly the reference made and reconfirmed his belief that the vaccinated are “guinea pigs”. The participant in the discussion believed that the unvaccinated could not have been taking part in an experiment because they did not allow anything to be done to them. This objection in the public discourse is challenged by another counterargument, namely that the unvaccinated are “the control group” in the experiment. The very notion of a “control group” might not be known to some of the participants. What matters is whether passive behaviour, inaction and waiting constitute key decisions related to assuming responsibility, i.e. another way “to take part in an experiment” or they are the “natural course of things” and no-one is responsible for them.

One of the focus groups reached complete consensus that text No 1 is untrustworthy and that it is the vaccinated who take part in a (dangerous) experiment. The participants in the discussion substantiated this opinion with a number of anecdotal “facts” and own observations. One of the examples refers to a man who used to be robust prior to getting vaccinated and used to wear light clothes even in cold weather and after getting the shot always had a coat on even indoors (because he was cold). Another example are personal observations from a hospital: *“I work in a hospital, people come in good health and they leave dead”* (a questionnaire) or from the neighbourhood: *“the neighbour got vaccinated and has not stopped complaining”* (a questionnaire). A participant in the focus group shared his own observations in a sweeping “statistical” conclusion. The participant concluded that the residents of a neighbourhood in the city without vaccines had better health and the vaccinated people were often sick.

The use of own observations and examples helps make comprehensible the conclusions related to vaccines that are otherwise incomprehensible and difficult to communicate. The drawback of this approach, though, is that it makes legitimate quoting first-hand experience as a reliable way of reasoning and a basis for decision-making. Then the other party can easily jump with counter-examples. As both examples and counter-examples do not come together in a manner which allows for a reliable fact-checking, it does not matter in reality during the discussion whether the examples are real or fabricated. What is more, the references to examples, apart from pointing out some observable facts, usually result in alleged causal links that cannot be checked at all within such “research” frame. A consistent position would insist that no personal examples can replace strict scientific research and institutional procedures checking the reliability of this research so that a pharmaceutical product is finally approved for use. Examples in this case would

have to be referred to as a legitimate argument only by way of illustration to the conclusions reached by other methods and not as an independent method for reasoning and proving the conclusions.

“Popular statistics” has it that adducing more than example is already a reliable way to generalize or that one can move to a generalization directly without the need to adduce individual examples. The degree of certainty of the generalizations can vary but what they come down to, as a whole, is that the vaccinated are the sick ones in the surrounding environment and the unvaccinated are the healthier ones.

There is no doubt that the anti-Covid measures are a matter of compromise with other areas of public life such as economic activity. In the course of the public debate many participants whose interests were affected have resorted to arguments from popular epidemiology in their attempt to make the authorities refrain from certain anti-Covid measures. In case such compromise is necessary, it should be communicated as a compromise and its parameters should be explained. The compromise should not turn into agreement with the arguments of popular epidemiology that are not science-based or into the integration of the latter arguments in the official positions of the public authorities.

“Popular (pseudo)science” means a corpus of scientifically unfounded, not yet confirmed or completely non-scientific statements about a topic of public importance. We use terms such as popular epidemiology, popular immunology and popular virology in the text to refer to the corpus of “knowledge”, beliefs and attitudes shaped around Covid-19 epidemic and Covid-19 vaccination. Popular epidemiology, virology and immunology serve as a useful populism tool. The legitimization of elements from popular epidemiology for populist purpose, including with the involvement of specialists, results in particularly negative effects on the possibility of building trust in science and in the judgement of institutions about such vital issues as vaccination.

TEXT 2

The amount of aluminum in some of the lots of the approved Covid-19 vaccines might exceed many times the amounts that can be naturally seen in the environment. In combination with the preservative thimerosal added to vaccines, which contains ethylmercury, aluminum can increase the risk of sterility particularly in women below 30. Research among young women exposed to the combination of mercury and thimerosal after the use of pharmaceutical products established that 30% of the examined women developed unusually frequently serious reproductive problems including non-curable sterility.

The second text for discussion is a stylized scientific statement based on a real scientific text of good quality. Various myths exist about the ingredients of Covid-19 vaccines. Some of them resulted in real action by groups organized on Facebook that hamper the vaccination process (*Myths about the ingredients of Covid-19 vaccines*, 2021). The real content of the text has been changed, though, and it presents scientifically founded popular anti-vaccination claims about some ingredients in vaccines with alleged or proven harmful

effect, aluminum and ethylmercury. In addition, blatant fiction (nonsense) has been added about the alleged interaction between the two ingredients, which, nevertheless, sticks to the rules of the scientifically cautious narrative, a tactics that can paradoxically attribute to the text additional credibility instead of discrediting it, as the content of the statement itself would be hard to expose “on the spot” as not credible by a non-specialist without additional research. The misleading message of the text is that there is scientific evidence that Covid-19 vaccines cause sterility. In fact, if a person is really prone to believe the claim, even additional research or persuasion by specialists might not have the expected impact. For instance, if in the course of our study, someone, who has read our fictional text, comes across the opinion of a specialist or a publication in prominent media, which establishes that the text in question contains a falsehood or at least an incorrect or scientifically unfounded information, the latter refutation might easily be rejected in the context of the broader conspiracy theory, which claims that both the specialist and the media themselves have been “bought” by the pharmaceutical giants to help cover the “truth”.

All the participants in one of the focus groups admitted that they did not understand text No. 2 because of the terminology used in it. The latter observation was quite positive, as text No. 2 is normally expected to be “incomprehensible” or to have credibility that cannot be correctly judged in daily life. If people who come across such a text honestly admit to others (and to themselves) that they do not understand it, it can be considered as a good sign. Such texts are in principle not very appropriate for mass communication, except perhaps by the media promoting scientific information, but even there they would have needed an editorial comment. Nevertheless, text No. 2 triggered response in another focus group, which was not related directly to its content but followed exactly the direction into which such texts would like to lead their readers. The comments were that no one knew what would happen after vaccination and that “there was no guarantee”. Another participant mentioned that it was the initial campaign introducing anti-Covid measures that scared people. It can be seen from the context of the statement that the participant referred to the daily announcement of the number of Covid-19 death cases prior to the development of vaccines. Perhaps the argument has been that the initial fear has been transformed into a fear of vaccines as well. The participant developed his thesis that it was important for public figures such as members of Parliament and experts such as doctors to set a personal example about getting vaccinated and using the green certificate so that the people feel sure and (and become willing to get vaccinated).

TEXT 3

As a result of the way in which the clinical trials have been carried out, we do not know whether the approved vaccines are good. It is unprecedented from a methodological point of view, the short time limits within which the trials have been carried out are concerning. The scientific community is concerned that there is no scientific data about the vaccines. The selection of the study groups has been also an issue, the vaccines have not been tested on the groups that are most vulnerable to the virus, namely pregnant women, children and elderly people.

Published in December 2020.

The third text is an abridged compilation of statements made by specialists in Bulgaria, who declared themselves to be more openly or indirectly against vaccines. We have kept only the theses that sounded serious and were produced by speakers who put forward arguments and referred to facts. Some of these statements contradict the information about the testing of vaccines quoted by prominent media or available at the websites of international organizations with expertise in health (presented in text No. 4). Some of this information also exploits the ethical and technical limitations related to the testing of any vaccine, not just Covid-19 ones, to substantiate the anti-vaccination stance. This approach has been used in the messages of the anti-vaccination movement. The claim about the insufficient testing has been in practice part of the repertoire of the anti-vaccination movement ever since its rise and there is data that this claim has been used for many of the traditional vaccines, regardless of how long mankind has relied on them at that. The anti-vaccination movement poses continually new “requirements” about tracking the long-term effects of vaccines, which can never be met in practice due to ethical, technical and other considerations. The ethical considerations are particularly important among the rest. It is regarded as unacceptable from an ethical point of view to keep for years control groups that are deprived of a vital vaccine in order to research the long-term effects of a vaccine as part of a strictly planned scientific experiment. It is also technically hard to achieve, as in the long run various personal circumstances would most certainly have resulted in the disqualification of many of the participants in such an experiment. The latter line of thought also fully applies to the testing of other medicines as well. These natural limitations have given a reason to attack vaccines against various preventable diseases.

The text was received with contradictory response in one of the focus groups. One of the participants agreed with the main thesis that Covid-19 vaccines have been quickly developed but attributed the latter fact to advances in science and not insufficient testing, as the claim in the text goes. Another participant did not believe that vaccines provide 100% protection against the coronavirus. Some of the comments made suggested that the participants were not fully aware of the messages of the text, which cast a shadow of doubt over the developed Covid-19 vaccines. A female participant quoted a story told by her friends about severe recovery in hospital and she believed that the vaccinated seemed to recover more easily from it. However, the participant believed that text No. 3 maintained the same position. Another female participant also misunderstood the text, which, in her opinion, maintained that vaccines had been tested on children, while she believed the opposite. The text in fact claimed the opposite.

The third text, which seems a bit harder to comprehend, resulted in an agreement in another focus group with the thesis that the elderly were the most vulnerable ones (and therefore it was much more important to examine the effects of the vaccine on them, which had not been done according to the text in question). After the latter statement was made, an unvaccinated elderly participant said that he felt “much better” without the vaccine because he had not experienced the epidemic in any way and he was convinced that he had antibodies against the coronavirus. The latter fact made him question the greater vulnerability of the elderly towards Covid-19.

The impossibility to verify alternative scenarios in personal terms results in a set of arguments and reflections that are fundamentally impossible to check. The people who chose to reject vaccination have no idea what would have happened at the same time

were they to choose to get vaccinated. Even if they got severely infected with Covid-19 and managed to recover afterwards, they could keep on thinking that they were spared thus something much more dangerous, namely dying from complications after getting vaccinated or developing severe long-term health problems due to the vaccine. Even if they had long-term health problems caused by the Covid-19 infection, they could continue thinking that they made the right choice because things could have been even worse following vaccination.

TEXT 4

More than 7000 aged over 65 took part in Phase 3 of the clinical trials of Moderna. Among the participants in Phase 3 of the clinical trials of the Moderna vaccine:

- 29% were aged 25-44;
- 39% were aged 45-64;
- and 25% were aged over 65.

The Pfizer vaccine was tested at 150 clinical trial sites in the US, Germany, Turkey, South Africa, Brazil and Argentina. 41% of the participants in the international clinical trials were aged 56-85.

The fourth text has been compiled from publications in prominent media that refer to statistical data about the testing of two of the Covid-19 vaccines used in the EU that has been published by expert organizations involved with the approval and control of the use of medicines. The publications date from the same time period as text No 3 (December 2020) and can potentially serve as a test of the credibility and soundness of the statements made by text No 3. That is why it is interesting to examine whether the two texts somehow interact with one another in shaping their readers' responses and opinions.

The response to text No 4, which provides official statistical data aiming to show the scale of the trials of the approved Covid-19 vaccines, triggered a shared response of mistrust in one of the focus groups. It gave rise to the question about how it was possible that the vaccine was developed for a year only given the fact that for some diseases such as AIDS no vaccines had existed for decades and for others such as cancer no vaccines had been developed from the very onset. A female participant shared that she no longer got vaccinated with the flu vaccine because she was afraid that she could be given a Covid-19 vaccine instead of a flu vaccine without her consent. She referred to her friends who had a fever after getting vaccinated with a Covid-19 vaccine for "three hours", which is one of the most common side-effects of vaccination (not only against Covid-19) and which is considered to be harmless compared to the potential outcome of getting infected with the disease.

Text No. 4 with its statistical data triggered the most negative response in another focus group, as two of the female participants were provoked by the text to declare openly for the first time in the conversation that they were against vaccines. Another female par-

participant declared that she also gave up the idea of vaccinating her children as well (as a result of the discussions surrounding Covid-19 vaccines). Yet one more female participant briefly wished to those “who hatched all this mess” to never have a good day in their lives without commenting the content of the text itself. She was fed up with all this talk about vaccines. Only two of the participants refrained from any opinion because as they admitted they could not judge whether the quoted figures were credible. Even though the source of information was not shown, they understood correctly that the primary source should have been vaccine manufacturers themselves. A participant shared that “each vaccine manufacturer has different data” most probably referring to the fact that manufacturers had vested interests and therefore their data could not be trusted and that the data was contradictory as well. Actually, no reader of the text could check or have first-hand knowledge either whether the figures are true or whether such data published at a different time and referring to different vaccines and trials is contradictory. Such observations require very serious expertise. The only guarantee for credibility is the reputation of the institutions responsible for generating and controlling such data. The other participant believed that the data was credible but he interpreted them in a negative way, as he said that the data showed how easily (and naively) people today might be “misled” to take part in experiments. In fact, the data aimed to show that Covid-19 vaccines have been tested extensively and on a large scale.

TEXT 5

The World Health Organization (WHO) refuted the speculations that Covid-19 vaccines can cause infertility as “rumours”. “Such fears are not true”, says Kate O’Brien, Director of the Department of Immunization at the WHO. O’Brien also rejected the assumptions that Covid-19 vaccines can change human DNA and the chemical compounds in them can harm human health. “The vaccines we have are safe” she said and stressed that all vaccine ingredients have been “strictly tested” and the pharmaceutical production process is controlled to ensure that all ingredients have “first-class quality and are safe for use by people”.

Published in December 2020.

The fifth text is just a little abridged version of the original publication quoting statements made by a high-level representative of WHO. The content of the statement has been published (reproduced) almost identically by different media and has been targeted at the general public. We have kept in the text the reference to the WHO and its representative to see whether the (supposed) authority of the international organization might have some positive influence on the assessment of credibility of messages, no visible effect at all or in contrary a negative influence due to the connection of WHO and other prominent organizations and personalities with various conspiracy theories. In the context of the Bulgarian reality of strong mistrust of institutions, as confirmed by various studies, the very reference to an official institution might also have a negative impact on the reception of the message, even if the institution in question is not well known to the receivers of the message.

In response to the messages of the text, a female participant in one of the focus groups noted that infertility is a potentially significant threat in her community. She admitted that there was a fear in her environment of infertility or impotence in men caused by a Covid-19 vaccine. She believed that these fears were also confirmed by the statements of specialists, associate professors and professors, who appeared in various “videos”⁷.

Text No 5 caused great confusion among the participants who had a formed and clearly declared opinion against Covid-19 vaccines as of the time of reading it. All participants recognized the statement as authoritative and understood clearly that it contradicted their own convictions. The majority of them refrained from commenting it or admitted their confusion. One of the most pronounced opponents of vaccines in the group admitted that he did not have enough knowledge to decide whether the statement of a WHO representative was true but the participant still mentioned the contrary opinion of a German doctor who claimed that no respectable doctor had given their opinion in favour of vaccines and that therefore he had been punished by “having his diploma suspended”. The participant felt that he had no right to oppose the latter prominent voice as well (“How would I oppose the opinion of a doctor?”). Two prominent experts mutually contradicting each other destroy in practice their messages. Most probably the primary source of information about the German doctor has been a fake or greatly distorted piece of news, which, though, does not have a great influence on the shaped attitudes and opinions. It must not have been hard for the participant in the focus group to come across prominent members of the medical profession in the Bulgarian context and members with academic titles who really made statements opposing the WHO opinion quoted. The latter would result again in the rule, indirectly formulated by the participant about the contradictory statements made by prominent people that mutually destroy themselves.

We have to draw a line between the arguments used by people in debates and discussions to impose their opinion, win a “victory” or defend their views, which they take to be part of their public identity, and the real reasons for the important decisions they make when they are left alone or under the influence of close members of their circle. During public discussions, such as the focus groups we organized, the public persona of each participant is mainly manifested, which is close to the information that the participant would publish in the social media, for instance. However, the latter might not be the same arguments that motivate in practice individual decision.

⁷ The ingredients of Covid-19 vaccines used in Bulgaria were especially presented and commented by the Ministry of Health in an attempt to suppress rumours and fears about them (*What are the ingredients of Covid-19 vaccines*, 2021).

■ MAIN REASONS TO REFRAIN FROM COVID-19 VACCINATION

Refraining from vaccination

This section examines the findings of our study about the attitudes towards vaccination among the Roma communities in light of opinions, reasons, typologies and other analytical tools from the vaccination literature. This is a multidisciplinary field which examines ethical, legal, communication, psychological, social, economic and other issues related to human willingness to get vaccinated against preventable diseases. Attention has been drawn for decades to declining vaccination coverage and the growing anti-vaccination movement, which has received a new impetus with the emergence of the social media. Studies from the second half of the 2010s have established that the repertoire of the anti-vaccination movement has been broadened with new arguments such as: 1) focus on freedom, 2) focus on naturality, 3) vaccine safety and 4) conspiracy theories. Therefore, it has become necessary for health experts and public institutions to have a different approach to the concerns and objections of various sub-groups of the anti-vaccination movement (Hoffman et al., 2019).

Research circles share a broad consensus that vaccination programmes are among the most successful practices ever implemented in public healthcare. As of the end of 2010s vaccines prevent against at least 26 dangerous diseases that have been widespread for a long time and nevertheless there are a lot of unvaccinated children across the world for various reasons (Gravagna et al., 2020).

A growing number of people, particularly in the developed countries, refuse to get vaccinated and vaccinate their children. In the second half of 2010s the growing number of unvaccinated people was linked to the outbreaks of measles in Europe and the cases reached their peak in 2018. (Guttinger, 2019). Bulgaria also experienced the deadly measles outbreak in 2010, when several Roma communities were particularly hard hit.

Covid-19 spread at a time when the anti-vaccination movement has greatly intensified its activities and globalized them with the help of the Internet and the social media. In order to understand the response to Covid-19 vaccines, it is necessary to examine them against the backdrop of the anti-vaccination movement because the majority of the arguments against vaccination repeat already known reasoning schemes and strategies.

The anti-vaccination movement has a visible influence on individual and public health that has been widely recognized in scientific literature (Kata, 2010). Reasons such as moral indignation, accusations of structural violence, discrimination and oppression targeted at the public institutions and the media are typical of the anti-vaccination movement of the 21st century in the context of its strong development in the field of the social media

(Smith & Graham, 2019). In general, accusations of the mainstream media, many of which have a certain editorial policy of denying access to theories and allegations that have not been verified, are characteristic of conspiracy thinking (Smith & Graham, 2019) and related theories. It can be assumed logically that both the public media and the big private media are part of the plot, given that according to the main conspiracy theories the plot is driven by malevolent super-rich people like Bill Gates, whose accessories are (all) governments across the world and leading international organizations.

Some authors offer a very exhaustive taxonomy of anti-vaccination claims that can be seen online (Kata, 2010). Much more detailed taxonomies have been created prior to the emergence of Covid-19 and they refer to other vaccines but the review of the materials available online shows them to be quite topical. Even though the social media constantly generate new objections against vaccines, they most often repeat and reuse old models.

Table 1. Systematization of the main objections and approaches in the information campaigns against vaccines

SAFETY AND EFFICIENCY	
Poison	Vaccines contain poisonous ingredients that are harmful to human health. Such ingredients can be also excipients.
Immunity	Vaccines weaken natural immunity not only against the disease in question but also against other diseases as well.
Immune response	Vaccines stimulate a short-term immune response, which is not enough to protect and that is why it is not worth to get vaccinated.
Defective lots	Defective lots of vaccines or lots with expired shelf life that are (even more) harmful to health are distributed.
Under-reporting of side-effects	The side effects of vaccines are (highly) downplayed. They are not reported or are even intentionally suppressed.
The diseases that vaccines protect against are trivial.	These are rare diseases, it is less likely to get infected, they are not dangerous (a quick recovery).
Diseases die out on their own or self-limit themselves.	Vaccination is not needed because diseases are self-limiting.
ALTERNATIVE MEDICINE	
Alternative treatment methods	More efficient therapies than vaccination exist such as the traditional medicine, homeopathy, etc.
Criticism of biomedicine	Modern medicine is wrong, it is based on erroneous beliefs about the role of microorganisms in human body and the environment.
Products with alleged therapeutic effect	Various medicines treat better the disease than vaccines or are more natural and less harmful.
Back to “natural healing” and nature	Children/adults need to experience the diseases to build an immunity and be healthy. We have to learn “to live with viruses/bacteria”.

CONSPIRACY THEORIES / “SEARCHING FOR TRUTH”	
Profits	Vaccines are created for the sole purpose of boosting the profits of pharmaceutical companies. According to some versions of the theory, vaccines are simply useless. According to others, they are harmful. The very disease might have been created on purpose to have greater sales of vaccines (See also Complicity).
Complicity	The disease might have an artificial origin, created in complicity with vaccine manufacturers and governments worldwide. Complicity of influential circles in promoting vaccination of the public ultimately aims at increasing their power, wealth and population control.
Suppression	Important information about vaccines is hidden from the public, for instance, their side effects.
Securing protection	Governments protect pharmaceutical companies or other parties from criminal and material liability.
Rebel doctors (scientists)	Brave and honourable doctors or scientists who do not want to be part of the conspiracy expose the truth about vaccines.
(Extreme) Fearmongering	The danger of the disease is exaggerated on purpose to scare the public and to make people get vaccinated. Other versions of the claim maintain that danger has been unintentionally exaggerated as part of incompetent communication.
Hidden agendas	The vaccination campaign pursues unannounced and illegitimate goals. Sterilization has been declared to be such a goal with former vaccines. With Covid-19 vaccines, “microchipping” has become widely popular or the intention to cause (mass) death in order to control population growth.
Antiscience	Science is a secondary tool to gain knowledge. It’s better for people to rely on their intuition, common sense or another (non-scientific) course of knowledge or a decision-making model.
Privileged knowledge	Someone has knowledge or the capacity to create knowledge that is inaccessible to (all other) experts in the field. Both an expert and a person not involved professionally with the issue of immunization might have privileged knowledge. Such claim might be one of the reasons for specialists promoting unchecked facts or unvalidated personal opinions, as seen from both Bulgarian and global examples.
Informed choice	This is a main argument of the anti-vaccination movement. Everyone should get all the information and should make their own informed choice for their children or themselves. The latter thesis has become particularly popular in the Bulgarian context and it has even appeared as the following catchphrase (“Everyone has the right to discretion”).
Multiple truths	Part of the success of anti-vaccination campaigns is due to the successful use of postmodern ideologies that embrace the idea of multiple truths. Multiple truths equate the opinions and publications by self-proclaimed experts online with the advice given by competent experts and scientists, based on evidence (Kata, 2012).

CIVIL RIGHTS AND FREEDOMS	
Parental rights	Restrictions of unvaccinated children violate parents' rights. Restrictions in the context of an epidemic (distance learning) violate the rights of parents and children.
Other rights	The restrictions for unvaccinated people violate a lot of civil rights. The anti-vaccination movement claims that the restriction of the rights of unvaccinated people and the very campaigns promoting vaccination violate civil rights*.
Totalitarianism/authoritarianism	The vaccination policy that requires vaccination and restricts the unvaccinated is a type of authoritarianism, totalitarianism, fascism or another system based on repression and trampling on freedoms. <i>"Vaccines are devised to help them control people."</i> (a questionnaire) <i>"Chips are installed through vaccines to control people."</i> (a questionnaire) <i>"I don't approve of vaccines, I think it's a global conspiracy driven by people backstage."</i> (a questionnaire)
MORAL, RELIGIOUS AND IDEOLOGICAL ARGUMENTS	
Religion	Vaccination is against God's will. Vaccination is unnatural and it is against the natural order established (by God). <i>"The vaccine is from the devil."</i> (a questionnaire) <i>"It is the mark of the beast, this is predicted in the Bible."</i> (a questionnaire)
Immoral actions	Development of vaccines requires experiments, which are immoral because people do them to earn money. The very mass vaccination is an immoral experiment of sorts because the effects of vaccination have not been researched well.
Other arguments of moral or philosophical nature	Very sophisticated philosophical and moral arguments have been developed against vaccination. One of them is that it is immoral to sacrifice the life of few people even to help many more people. It is difficult to challenge such arguments because they are founded on (deeply rooted in) values but they do not enjoy staunch support and dissemination. Moral, religious or ideological arguments cannot be directly challenged or rebutted. They can be a subject of theological or philosophical discussions but it is hard to imagine broadly accepted criteria or mechanisms that might determine the outcome of such discussions. For that reason, suggestions circulate in the medical ethics to allow this type of people who refuse to get vaccinated to enjoy their right of exemption.
* It is worth discerning such restrictions from the restrictions of the rights of various minorities in the context of an epidemic risk, the most important among which is potential restricted access to vaccination and treatment.	

The table is based on a publication of Kata (2010) with additions and adaptation that takes into account the findings of our study and some specificity of the arguments against Covid-19 vaccines.

All the reasons listed in the Kata typology of 2010 can be seen in our study regarding Covid-19 and the vaccines developed to protect against it. The study will focus on the most important ones that are manifested with great frequency and intensity. We have also pointed out in the relevant section the counter-arguments that are used against the least popular, misleading and anti-vaccination theses. Promotion and inclusion of these counterarguments in the vaccination policy and vaccination campaigns is a matter of an overall strategy and it goes beyond the scope of this analysis.

Confidence in vaccines and vaccination

Confidence in vaccines is defined as “trust in:

- a) the effectiveness and safety of vaccines,
- b) the system that delivers them, including the reliability and competence of the health services and health professionals, and
- b) the motivations of policy-makers who decide on the need of vaccines” (Betsch et al., 2018).

We have also to add that confidence in vaccines depends critically on the evaluation of vaccines by referential personalities who have authority for a given community. Confidence is manifested through the consent for vaccination and vaccine refusal or hesitancy (questioning vaccination).

A British study shows that the largest predictors of Covid-19 vaccine refusal or uncertainty are low income under a certain threshold, having not received a flu vaccine, poor adherence to Covid-19 measures, female gender and living with children. High levels of vaccination mistrust have been registered among ethnic minorities, low-educated people, low-income people and the ones who are less familiar with Covid-19. The same study noted that high levels of vaccine benefit mistrust and concerns about future unforeseen side effects were among the most important determinants of unwillingness to vaccinate (Paul et al., 2020). However, it should be taken into consideration that as early as the beginning of the pandemic in the first half of 2020, willingness for potential Covid-19 vaccination in the US and a number of Western European countries is quite high: the sceptic or hesitant account for approximately 1/4 (Paul et al., 2020).

Specialists predicted in the early stage of the pandemic that it will take 12-18 month to get the vaccine against SARS-Cov-2 unless someone finds a shortcut to make it faster. The specialists have been well aware of the potential threat to future confidence in vaccines from the possible failure of vaccines due to low effectiveness (Ruffell, 2020).

Our study has established a strong and universal mistrust of Covid-19 vaccines in the communities examined combined with vaccine hesitancy. The concept of “vaccine hesitancy” covers the full set of attitudes and behaviours leading to vaccine delay or refusal (Quinn et al., 2019). Researchers cannot agree whether it is more correct to focus on attitudes that are more difficult to monitor or behaviour itself (non-vaccination), which in most cases is supported by conclusive data. Vaccine hesitancy can be also defined as “delay in acceptance or refusal of vaccines despite availability of vaccination services. Vaccine hesitancy is complex and context specific varying across time, place and vaccines. Vaccine

hesitancy includes factors such as complacency, convenience and confidence” (Turner, 2016). Vaccine hesitancy and mistrust of vaccines are a global phenomenon, which affects the use of all vaccines, not just Covid-19 vaccines (Betsch et al., 2018). The premises for vaccine refusal or hesitancy are similar for all vaccines, Covid-19 vaccines make no exception despite some specific reasons.

Declining vaccination coverage and increasing vaccine hesitancy is a global phenomenon, which precedes the Covid-19 pandemic and affects all mass vaccines (Gravagna et al., 2020).

The scale measuring vaccine hesitancy includes, inter alia, questions related to confidence in vaccines in general and in the specific vaccine that is examined. Hesitancy is also influenced by personal characteristics such as general hesitancy as well as by factors of the institutional and social environment, among which the recommendation of a doctor plays an important role, as seen from studies of flu vaccines. The study of OSI-Sofia also includes a similar set of questions without claiming to develop and validate a special scale to measure vaccine hesitancy.

Apart from confidence in vaccines and the system that administers and recommends them, some authors also point out other psychological antecedents that can help measure vaccine willingness. Such antecedents include complacency (not perceiving diseases preventable with vaccines as high risk), constraints in the form of structural and psychological barriers, calculation (engagement in extensive information searching), and various aspects pertaining to collective responsibility (willingness to protect others) (Betsch et al., 2018).

We have encountered in our study a number of examples of health anxiety and fears not only pertaining to vaccination. The latter fears might also be due to the poor access of some Roma communities to healthcare as well as confusion in the context of the so-called infodemic related to the pandemic and vaccines. A lot of the participants in the study have shared or manifested signs of such confusion and health insecurity.

Some research shows that health anxiety is rather a personal trait that increases Covid-19 fear in some people that are prone to health anxiety in principle about a wide range of health risks as well (Sica et al., 2021).

It can be legitimately assumed that the general rate of public health anxiety has gone up as a result of Covid-19 and the related information flow, which is to a great extent generated online, particularly by the social media. All the mainstream media today, taken together, account for a small share of the overall information flow. In addition, they cannot be used to obtain a lot of information for a short span of time and for

“I’m afraid of watching the TV now, I keep hearing only bad news.” (a questionnaire)

“These diseases and all sorts of vaccines. There are Russian vaccines, other vaccines. I don’t know which is safer, which is more effective. That’s why people fear and say that “It’s all about business of some pharmacists.”” (a questionnaire)

“There’s someone in the pyramid who dictates. Biblical prophecies are coming true and even unbelievers can see it. People suffered a psychological blow and they can no longer be happy. People started suffering from mass depression.”
(a questionnaire)

purposeful search for specific information but they have to be followed for a longer time period⁸. Conditions such as cyberchondria, obsession by health fears (hypochondria) leading to constant searching online for information about particular diseases, which in turn creates greater fear, are fed by the new media. The very predisposition to careful judgement is a factor capturing individual motivation to reflect and question vaccination. Judgement often goes hand in hand with active and large-scale looking for information, where there is a great risk that the person searching for information might be lost in the chaos of

the infodemic information flow. The very act of looking for information is a sign of insufficient confidence in the recommendations of the institutions responsible for studying and approving vaccines.

Opinions, attitudes and convictions related to the safety and effectiveness of Covid-19 vaccines

A greatly heightened sense of risk posed by Covid-19 vaccines has developed and spread in the communities examined by us.

Three convictions pertaining to the effectiveness of Covid-19 vaccines have been almost ubiquitous among the participants in the study. Each of these three convictions is shared in one form or another and in one degree or another by more than 90% of the respondents:

1. Covid-19 vaccines have not been sufficiently tested;
2. Covid-19 vaccines have dangerous side-effects;
3. information about Covid-19 vaccines is intentionally suppressed.

These convictions are in direct conflict with the main message of the institutions responsible for the implementation of the vaccination policy in Bulgaria, namely that Covid-19 vaccines have been proved to be safe for human health. Otherwise, they would not have been authorized for use. Doubting vaccine safety is the most blatant sign of mistrust of the institutions that we have observed among the examined communities.

Where the respondents have been asked to list in a spontaneous and scattered way important points about Covid-19 vaccines, they share the following:

- 1) health risks from vaccination (13%);
- 2) direct harm to health (44%);
- 3) some conspiracy theory (10%);

⁸ Their electronic versions can be used in such a way but they have already become part of the cyberspace.

- 4) confusion from the contradictory information (11%);
- 5) the vaccines have not been sufficiently tested (5%);
- 6) vaccines are ineffective (9%);
- 7) general mistrust of vaccines (5%);
- 8) microchipping (5%).

Spontaneous listing includes only the most important points about vaccines that immediately come to the respondents' mind. Most respondents have listed more than one of the negative characteristics of Covid-10 vaccines and each of them provides sufficient grounds for vaccine refusal.

Similar ranking of concerns about Covid-10 vaccines can be seen in other countries as well, including countries that are geographically close to Bulgaria. A survey conducted in Turkey has shown that the main reasons for vaccine refusal, even before vaccines have been developed, include anxiety about side-effects and concerns that the vaccines are newly-developed and might have side effects. Second comes the main conspiracy theory pertaining to vaccines, namely that Covid-10 is a biological weapon and that the vaccines are a tool of the same people who created the virus. Nevertheless, the preliminary readiness for vaccination of the Turkish population is quite high (Akarsu et al., 2021).

In modern world humans perceive and act on risk in two fundamental ways. Risk as feelings refers to individuals' instinctive and intuitive reactions to danger. Risk as analysis brings logical conclusions, scientific deliberation, a systemic risk assessment and informed decision making (Slovic & Peters, 2006). At first sight risk analysis seems to be a ground for objective and irrefutable conclusions unlike the subjective perception of risk but this is not the case. The transition from risk analysis to actions depends on the strictly subjective preparedness to take a certain risk. The analysis itself depends on input data and it is difficult to achieve a consensus about the credibility of the data, particularly with the rise of the social media. The credibility assessment of information has lost some of its institutional and procedural dimensions and has become a field of personal preference. What is more, the line between the immediately observed reality and the social media has been blurred for some of the respondents in the study or the media culture needed to be aware of the risk of manipulation of media information is lacking, including for critical thinking. Thus, the information seen online is shared as a first-hand real experience in the first person singular here and now.

Finally, even where the same reliable information has been used, risk assessment itself is a complex task and no one is ensured against making a number of mistakes. In other words, it is easy for a person to assess wrongly the risk even where the person has "switched off" their feelings and has true information.

We have constructed two composite indicators in our study that are related to attitudes to vaccination and are probably interconnected. Both indicators are scaled to increase from 0 (minimum) to 1 (maximum)⁹. The first indicator is called an assessment of the harm and risk of Covid-19 vaccines. It sums up convictions about the harm and risk of vaccines. Harm refers to the certainty that vaccines certainly or almost certainly harm human

⁹ A description of the way the two indicators have been constructed can be seen in the Annex "Development of the risk/harm and effectiveness indicators of Covid-19 vaccines".

*“I’ve seen it myself how a coin sticks to their arms.”
(a focus group)*

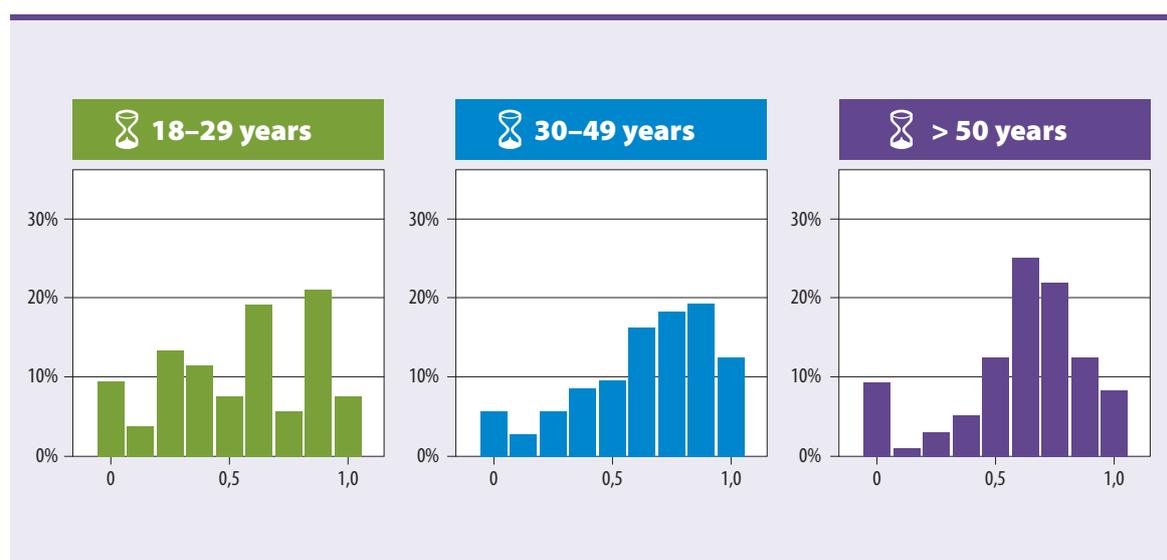
*“I’ve seen a woman faint after she got the vaccine.”
(a focus group)*

health, for instance, because they have been intentionally developed for that purpose. Risk refers to the danger of complications or other adverse consequences of vaccines. These consequences might not affect everyone but the respondents have evaluated them as an unacceptably great danger and they are afraid of them. Harm and risk are clearly differentiated in the convictions of quite a few of the participants in the study; however, as harm and risk cannot be consistently differentiated for all participants and statements, we united them

in a common indicator. The second indicator assesses conviction in the effectiveness of vaccines.

Differences in the perception of harm and risk can be observed along several demographic indicators.

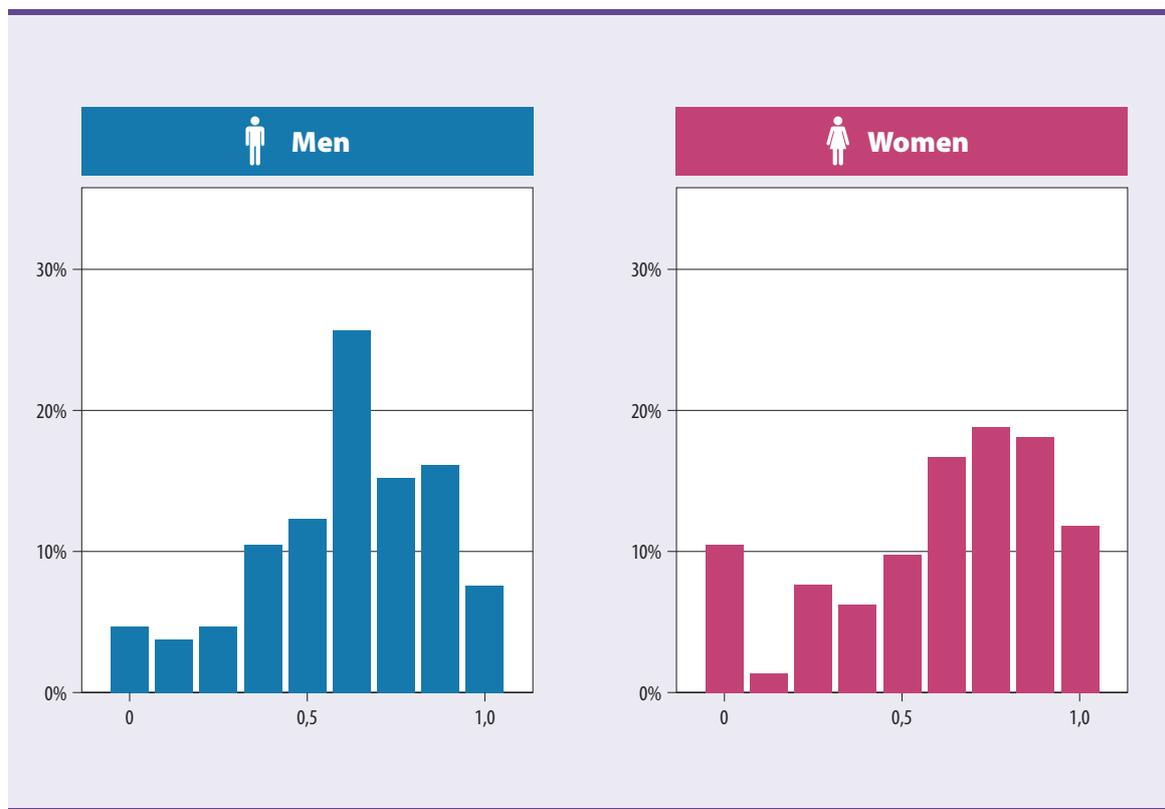
Fig. 20. Subjective vaccine risk/harm assessment by the respondents’ age



The increase in the respondents’ age goes hand in hand with their growing perception of vaccine harm and risk. This observation is particularly unfavourable for public health because the elderly are more vulnerable to Covid-19 and they are in greater need to get vaccinated. However, the people who do not associate vaccines with any risk and harm in all age groups account for not more than 10%. In principle, for a vaccine refusal or delay for an indefinite time to occur, it is enough for a person to find even one risk or harm from vaccines. Where multiple risks are listed, vaccination becomes highly unlikely.

Women demonstrate a bit lower perception of risk and harm from vaccines. However, only 10% of women do not list any risk or harm from Covid-19 vaccines as well. In general, differences in risk assessment between the two genders are insignificant against the backdrop of the general heightened perception of risk.

Fig. 21. Subjective vaccine risk/harm assessment by gender



Our study has not established any significant differences in the assessment of vaccination risk and harm and in the overall attitudes to Covid-19 vaccines along the line of different social and demographic indicators. The latter finding has been somewhat surprising. As a whole, the majority of studies of healthy behaviour held in different countries show that the better educated and the wealthier strata demonstrate healthier behaviour on average. Such conclusion is present in generalizing reviews and it is vaccines that turn out to be an exception pertaining to the direction of the gradient, as according to some studies parents with higher social status turn out to be more prone to refuse to get their children vaccinated (Goldberg, 2017). It can be assumed that due to the universal mistrust of Covid-19 vaccines in Roma communities, potential differences along the education lines have not been manifested. However, such differences should not be expected given strong vaccination resistance in educated strata of the Bulgarian and Roma population such as among doctors and health workers, teachers, etc.

The most serious differences in vaccine risk and harm assessment have been observed in different towns.

Two of the neighbourhoods studied stand out with a considerably lower vaccine risk and danger assessment than the rest, which still remains very high. However, differences in risk assessment as of the time of the study have not had impact on the vaccination rate, which has been insignificant in all examined towns as of December 2021, as well as on the plans to proceed with vaccination.

Risk assessment is connected to vaccine effectiveness assessment.

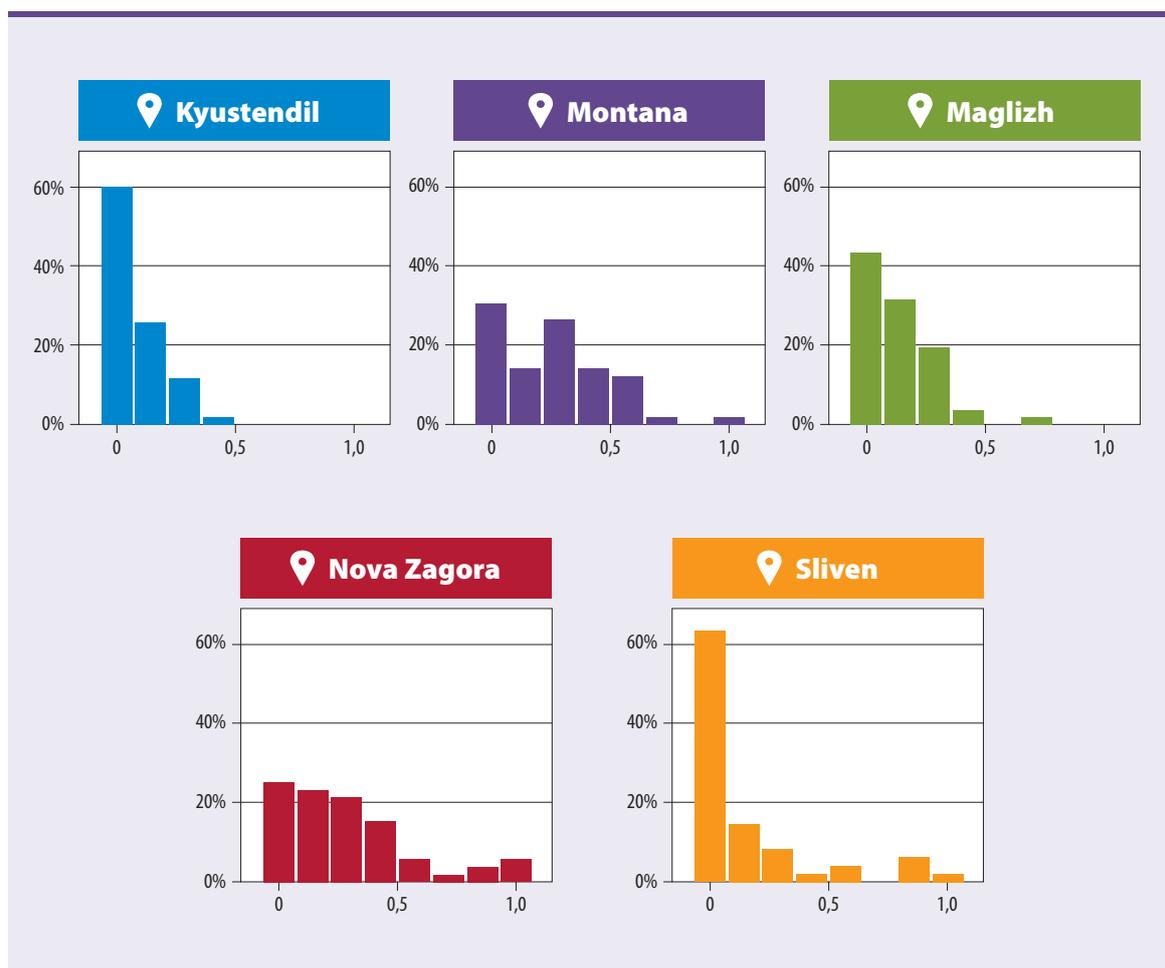
Fig. 22. Subjective Covid-19 vaccine risk and harm assessment by settlements



Risk assessment and effectiveness assessment are in an inverse correlation. This is due to the fact that, as some theories predict, the subjective perception of high risk is often combined with perception of small use even though it is the contrary in reality, i.e. higher risk brings usually greater benefit. Small use in vaccines is in the form of low effectiveness. Even those who share only some fears about vaccines, have perception of low effectiveness or uselessness added to their perception of risk. In general, the perception of uselessness of vaccines is once against the strongest where the perception of risk is the greatest, with the exception of one of the locations where a relatively lower perception of risk can be observed together with stronger perception of the uselessness of vaccines at the same time. As a whole, perceptions of risk and uselessness enhance and complement each other in a way which is indicative of less willingness to get vaccinated, which our data confirm.

Several sets of convictions and attitudes pertaining to Covid-19 vaccines have emerged in our study, which include the familiar anti-vaccination arguments with varying popularity in the communities examined. The attitudes favourable to vaccination are shared by fewer people but they stand out as a separate system of coherent attitudes. Evidently the goal of a successful campaign promoting vaccination would be to support these people

Fig. 23. Subjective assessment of vaccine effectiveness by towns



who share such opinions and to increase their number, while creating at the same time additional incentives for vaccination. The vaccination process can be immediately accelerated with the help of incentives that might not be directly connected to vaccines and the disease they prevent. An example of such incentive in Bulgaria is the one-off financial support provided to vaccinated elderly people. This incentive has been announced and delivered after our field study has been completed and therefore its effects cannot be immediately assessed. It has to be noted that vaccination incentives were not used in Bulgaria in the past during the pandemic, including during the previous epidemic waves that broke out after Covid-19 vaccines had been developed (the third and the fourth epidemic waves). The late introduction of vaccination incentives means that the initiative to fight the disease belonged to a great extent to vaccination opponents first. Delayed measures always stand the risk to be received by the vaccine hesitant or opponents as a desperate institutional action that comes too late. The retired people are one of the most vulnerable groups in the Bulgarian society. The majority of them live below the poverty line. Vaccination opponents had the time and means to present such incentives as manipulation of their extreme social vulnerability and inequality and not as an act of showing special concern for one of the groups most affected by Covid-19. Some of the participants in our study that have already formed stable anti-vaccination attitudes also shared their reserve and suspicions about the reasons behind vaccination incentives.

Covid-19 is not dangerous

A set of convictions has emerged in our study centred around the perception that the disease is not dangerous. The respondents who share these ideas also believe that Covid-19 vaccines are not recommended for people with many chronic conditions. They do not believe as a whole the main conspiracy theories and do not believe that Covid-19 vaccines are particularly dangerous for health. In their opinion vaccines are simply not needed given the highly exaggerated risk of the disease. This group strongly upholds the opinion that the Russian Covid-19 vaccine is better, which is not that important given the fact that the need of vaccination in general is questioned. 43% of the respondents in total do not believe that Covid-9 is a dangerous disease, as they agree with at least one claim, the meaning of which is that Covid-19 does not pose a serious threat to the lives of the infected.

The studies dedicated to vaccine refusal show that **complacency** plays an important role among the antecedents for vaccine refusal. This feeling has also been included in a special scale predicting likelihood of vaccine refusal and known as 5C¹⁰. Complacency is a feeling of invincibility from a particular disease preventable by vaccination, which is motivated by underplaying the disease risk in general or for a particular person or a group with particular traits.

“God has given me immunity, I’ll survive the virus even without the vaccine. I get sick rarely, I don’t take drugs... I fully rely on my natural immunity, which has been given to me.” (a focus group)

“For as long as we remember, ever since this neighbourhood was created, we have lived with Covid because there is trash everywhere, dirty street, dirt and so on. But our children get born healthy, resilient from their birth to this as well.” (a focus group)

Faith in supernatural protection demonstrated among some of the examined communities, where local religious institutions have strong influence, can also be accepted as a specific flagrant example of complacency:

“I have faith in God and He protects me.” (a questionnaire)

Conspiratorial system of convictions

Another group of respondents support conspiracy theories. They usually support all their versions together with denying the effectiveness of Covid-19 vaccines. Evidently if the main goal of vaccines is microchipping to monitor and control people and if vaccines have been only developed for a profit, it is not necessary for them to be effective. In fact,

¹⁰ The five categories in the scale refer to words and phrases in English starting with the letter C: confidence, complacency, constraints, calculation, collective responsibility.

their only purpose is to serve the conspiracy and all the information about vaccines is manipulated. Of course, vaccines in this system of convictions have adverse side-effects, the very microchipping is such a side-effect.

Belief in conspiracy theories pertaining to Covid-19 vaccines is quite widespread in the Roma neighbourhoods of all monitored towns. Two of the neighbourhoods stand out with much lower levels of confidence in conspiracy theories, which nevertheless remain high. These are the same towns that manifest a bit lower perception of subjective risk of vaccination. As a whole, given such strong penetration of conspiracy theories, the likelihood of vaccination is extremely low. Most conspiracy theories directly claim or at least lead to the logical assumption that vaccines are either harmful for all people or pose a danger to the health of most people, or at best are completely useless, even if they do not harm in addition.

83% of the respondents in total accept as true at least one conspiracy theory. As it can be seen from spontaneous statements and from the discussions of the focus groups, at least some of the supporters of conspiracy theories believe that the disease does not exist at all, which makes them closer to the opinions of the ones who believe that the disease exists but it is harmless. Both the complete denial that the disease exists and the conviction that it is harmless lead to an understanding whereby international organizations and the Bulgarian government have provided misleading information intentionally or out of incompetence. The presence of such a high share of respondents believing in conspiracy theories is indicative of the serious flaws of communication activities of public institutions in Bulgaria and low confidence in them.

Sterility, other risks and lack of effectiveness

A group of people has been identified who believe that Covid-19 vaccines result in sterility. The latter conviction is combined with lack of confidence in the effectiveness of vaccines that do not provide sufficient protection from Covid-19. In addition, such conviction is complemented by opinions that vaccines pose additional health risks particularly in comparison to other vaccines and that there is no information about their ingredients. Such convictions can be interpreted as a more specific part of a more general system of beliefs that presents Covid-19 vaccines as ineffective and dangerous. Still, the examined communities are particularly sensitive to the threat of infertility. Infertility carries potential stigma and other serious social consequences and it affects directly specific, younger age groups. That is why concerns that vaccines result in infertility should be paid particular attention. Rumours about infertility have been spread about almost any of the vaccines used on a mass scale, so that apart from everything else, this claim can potentially be revived easily and transferred to other vaccines and can interfere with the official immunization calendar approved in the country.

Belief in the stalemate and the lack of an alternative except accepting the risk of contracting Covid-19

There are some respondents who are convinced that vaccines do not protect from severe disease, i.e. that vaccines have doubtful effectiveness. Many of these respondents believe that Covid-19 vaccines pose a risk of health problems and complications. At the same time these people believe that the disease is dangerous and poses greater risks than vaccines. Such people believe that they should not get vaccinated because they do not consider vaccines to be particularly effective. Thus, the situation in which they are can be characterized as lack of choice, i. e. they are forced to live with the risk of getting infected with Covid-19 because vaccines do not offer them a safer alternative.

Vaccination is dangerous and poses serious health risks but also has a positive effect and is the lesser evil compared to the Covid-19 disease

Another group of the respondents believe that the disease is serious and they admit that it's better to get vaccinated; however, they still believe that Covid-19 vaccines are more dangerous than the other vaccines that are widely used. This group shares a strong conviction that there is no information about the ingredients of the Covid-19 vaccines and that Covid-19 vaccination is not recommended for many people with chronic conditions. This system of attitudes accepts Covid-19 vaccines as the lesser evil, which, however, also poses serious dangers. Logically people with similar convictions get vaccinated with fear, expecting possible negative consequences.

Vaccination has a positive effect, it is sufficiently safe and it is preferred to the Covid-19 disease

Some of the respondents believe that Covid-19 is a serious disease and that vaccines protect from severe disease and hospitalization. The people regarding Covid-19 as a serious disease and vaccines as protective, who are few, tend to be prone to agree with the statement that the Russian vaccine is better than the ones used in Bulgaria (and in the EU). These are people who in general believe vaccines to be good but evidently find also arguments to delay vaccination out of concerns that they are not offered the best.

It has to be also underlined that the people who support the last two pro-vaccination conviction systems in general do not have to be necessarily vaccinated. What is more, some ideas triggering hesitation have interfered with their conviction systems that vaccines nevertheless pose a danger or that they do not have access to the best vaccines.

Communication about Covid-19 vaccines

We believe that several useful lessons can be drawn from the challenges related to Covid-19 vaccine communication about the following: 1) the Covid-19 vaccination campaign; 2) promotion and delivery of future vaccines and vaccination campaigns; 3) policies in other fields, relying on support and trust, which are science-based and pose moral dilemmas.

The vaccination policy is one of the most important fields in modern healthcare, which critically relies on communication. Health communication uses methods that influence both subjective manifestations of risk, the emotional and the rational one.

A wave of false information has accompanied all pandemics, including the ones in the Middle Ages, about which more credible information exists. However, the wave nowadays is spreading at an unprecedented speed and has the size of a huge tsunami. Therefore, an acute need arises to provide credible information fast, as it matters which news will come first (Zarocostas, 2020). The problem is that given all other things being equal, credible, verified information is created much more slowly than disinformation and misinformation¹¹ because it takes much more procedures of gathering data, validation and verifying. In addition, a lot of the authentic scientific information includes caveats, considers different scenarios and applies methods in general, which make it look uncertain. Conspiracy theories, in turn, select (or create) only the facts and claims that support them and there is no need to deal with uncertainty and with the planning of complex experiments and models for checking. Our study confirms to a certain extent the theories that information, which arrives earlier, stands better chances to be considered as credible. The same applies to information that comes more often, from more sources, from sources that seem to be independent and without any vested interest at that.

The WHO representatives admit that while the main wave of incorrect information is coming from the social media, traditional mass media can also present a distorted picture, for instance by choosing the most sensational photos. Yet, it is traditional media, particularly the state-owned ones, that have as their mission and goal to publish verified and trustworthy information, that can eventually end up in the social media and can have a strong impact (Zarocostas, 2020).

The anti-vaccination movement uses methods that resemble official health communication in a very efficient manner, offering, on the one hand, data, statistics and analyses, while using, on the other hand, photos, personal stories, emotional statements and other communication means that can have a strong emotional charge and cause anxiety and fear.

Our study clearly demonstrates how rapidly information is spreading nowadays, even where information has been created in far-off places and by circles that have nothing to do with the communities we examined.

In practice, there is hardly any important anti-vaccination thesis or theory that we have not found among the respondents in our study. Official health information, at the same time, seems to be relatively unfamiliar and is shared and approved by a limited group

¹¹ Misinformation means spreading incorrect information under the conviction that it is correct. Disinformation, in turn, supposes that the person spreading it is aware that it is incorrect.

“Was it in Australia that the girl got the vaccine, fell down and died? She fainted in no more than 5 minutes.” (a focus group)

“I’m afraid of vaccines, I saw a video showing how the father of the Queen of England fell down and died.” (a questionnaire)

of people. The study leaves the general impression that anti-vaccination theses enjoy a broad community and public consensus and that it is these theses that are regarded as commonly recognized.

In conclusion, it has to be stressed that vaccination is an intervention whose social impact is achieved not only through individual vaccination but also through reaching a certain percentage of coverage (Guttinger, 2019). That makes vaccination, particularly against communicable diseases, a common public good. The public nature of this good does not necessarily waive individual choice. A lot of public goods rely mainly on persuasion for involvement and not on coercion. However, even in such cases it is needed to achieve a broad public consensus, which in the case of vaccination is ultimately manifested only through individual participation. People “vote” for this policy by getting vaccinated. The findings of the study show that the majority of the respondents have not been persuaded to join this type of public consensus.

Personal stories and emotional risk perception

Our study includes quite a few told and shared personal stories that we have not referred to and that the Bulgarian online environment abounds in. The stories pertain to people that have been infected with Covid-19 and people that have been vaccinated and had health problems afterwards.

Risk perception is not just a matter of rational calculation but also a type of emotional state (affect). As early as 2010s researchers have noted the growing role of the Internet for vaccine refusal, something that has also been connected to the emotional engagement of the messages. Websites aimed against vaccines for children traditionally rely on strong emotional content supported by photos and personal stories of children that allegedly suffered from vaccines (Betsch et al., 2010). The same tactics has rapidly been reproduced by the websites spreading information against Covid-19 vaccines. Such “overspill” of ideas poses huge potential risks to the implementation of the activities envisaged in the official immunization calendar for children. The risk is particularly great in vulnerable communities, where quite a few of the Roma live and where children’s vaccination coverage not long ago was sufficiently low to pose a grave risk of dangerous epidemics.

Personal stories about adverse effects of vaccination are a popular tool of the anti-vaccination movement; they have been used long before the social media emerged and they have been used in the social media against other vaccines long before Covid-19 appeared.

The campaigns involve posting unconfirmed stories about people who developed various symptoms soon after vaccination. Even if these stories have taken place, there is no proof pertaining to vaccination (*HPV Vaccine Side Effects on Twitter*, 2021).

Social media accounts that used to post information against other vaccines switched to Covid-19 after the pandemic had started (*HPV Vaccine Side Effects on Twitter*, 2021).

One of the most popular Instagram accounts that has been involved for years with vaccines delivered to children has switched to Covid-19 (*Children's Health Defense*, 2021). Such webpages spread stories whose credibility stems from the fact that they are testimonies of the people telling them who consider themselves or their relatives and friends to be the injured party. Such stories stay unconfirmed either because the health authorities have refused to examine them or because the health authorities have examined them and have concluded that there is no evidence pertaining to vaccination.

Such personal stories create an environment where people find other persons who suffered from vaccines attributing to vaccination all health issues that have manifested themselves afterwards.

Confidence in authorities and experts and the role of science in communication about vaccines

Anti-vaccination arguments nowadays include ideas coming from new scientific paradigms that actually do not question vaccines and vaccination but can easily be misused for such purpose (Guttinger, 2019). Some researchers refer to the new attitude to the role of microbes for the human body by considering them not as a (harmful) element of the environment but as an integral part of the human body (Guttinger, 2019). Convictions about the natural essence of contacts with different microorganisms (viruses and bacteria) can be also seen among the respondents in our study. Some of them believe vaccination to be the antithesis of "natural" processes:

"There are more talks about the fact that people fear vaccines, as vaccines are ineffective and unnatural. People are afraid"
(a questionnaire)

"I feel healthy and I don't want to have a foreign body enter my own"
(a questionnaire)

"I don't want us to be artificial people" (a questionnaire)

Without being able to claim that some of the respondents have been directly influenced by new theories, we can assume that via the public space, which nowadays spreads (and transforms) ideas rapidly, repercussions of such reasoning might have reached them. Such statements are not uncommon in the Bulgarian media environment even by some prominent commentators. Some authors have reached the conclusion that it is not enough any

longer to simply bring forward evidence about the safety and effectiveness of specific vaccines. It is important to challenge false interpretations of new scientific theories and paradigms in life sciences (Guttinger, 2019). Such theories quite often reach the general public, as it can be seen from our study, disguised in anti-vaccination and essentially anti-scientific interpretations.

Quoting “experts” is popular in anti-vaccination messages. A media check for many of the “experts” has shown that they have neither the necessary competences, nor a role recognized by the institutions that allows them to make statements about the topics in question from the position of an authority. However, reference can be also made to real experts, for instance scientists or practitioners, who uphold an opinion questioning certain vaccines or vaccination against certain diseases. The majority of cases of such references involve personal opinions and stances that have not passed through the usual strict mechanisms of scientific or other institutional verification. Such mechanisms are reviewing, deliberating and decision-making by colleges of specialists, expert councils, managing bodies of specialized organizations, etc. Reference to privileged knowledge, which excludes all other specialists, is a key argument in campaigns aimed against vaccination of children. More numerous examples can be pointed out with regard to Covid-19 vaccination. **Our study, both the questionnaires and the group discussions, gives examples of quoting of opinions of experts, sometimes probably as a result of fake news but sometimes real ones. Setting opinions of some experts against other ones is one of the important reasons for losing confidence in vaccines not only against Covid-19.**

An accelerated scientific dissemination has started during the Covid-19 pandemic with lowered reviewing standards. Some of these scientific materials have been quickly withdrawn but sometimes after they have already created repercussions in the media, including the social media (Casigliani et al., 2020), and once information has been spread in the social media, it can practically be never “withdrawn” or ultimately rebutted. It starts living its own life that might prove to be for good. The latter fact cannot serve as grounds to question freedom of creation and dissemination of scientific knowledge but it underlines how important it is to do science responsibly and to guarantee its quality by means of approved institutional mechanisms. **A lot of the participants in our study are right to proceed with caution about complex scientific information and refuse to judge its credibility, taking into account the limited knowledge of people that are not experts in a field.** However, such information is translated with the help of numerous intermediaries, often incorrectly, into a user-friendly language and reaches the general public without being subject to the scientific verification procedures.

Health specialists worldwide are also exposed to the influence of the mainstream and social media and are not protected from mistrust and wrong risk assessment (Casigliani et al., 2020). That is why the guidance and support they should receive from the health authorities and from their professional organizations are particularly important.

■ POTENTIAL IMPACT ON VACCINATION WITH OTHER VACCINES

We can naturally assume that Covid-19 vaccine acceptance rate might have potential impact on the overall vaccination policy. Impact on vaccination of children is of particular interest in this respect. Vaccination in Bulgaria outside the official immunization calendar is notwithstanding too low.

The good news in our study is that as of the time it was carried out in late 2021 we have not witnessed any signs of potential negative impact on the other vaccines. The confidence in them registered in the study is very high. Quite a few of the respondents have shared spontaneously that they are vaccinated themselves or that their children are vaccinated. The existing vaccines for children are identified as safe and effective. Exceptions are single and almost all of them do not seem to be related to the pandemic. There are some people who have not expressed their opinion about the issue or have openly admitted that they do not know much about the other vaccines. We can only guess their attitudes but we have no grounds to assume that they are negative or that their silence is somehow related to the Covid-19 vaccination campaign. We cannot assume the latter in any way based on the responses to the other questions in the study.

Nevertheless we have to point out some risks that can have a negative impact on mass vaccination of children:

1. The arguments against Covid-19 vaccines have been transferred fully from the toolkit used against other vaccines. The transfer at that has sometimes taken place through redirection within months of the same resources (people, websites) to the new topic. There is no obstacle for the same resources to be transferred back to their previous topic after the possible fading away of the Covid-19 topic.
2. The anti-vaccination movement has remained prior to Covid-19 concentrated in relatively closed, though expanding, circles with temporary “flare-ups” in popularity. Interest in Covid-19 has allowed these circles to increase incredibly their audience. The latter fact might provide them with great momentum to return in a much stronger manner to the previous thematic field where vaccines for children are the most important ones.

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ANNEX

■ DEVELOPMENT OF THE INDICATORS OF RISK/HARM AND EFFECTIVENESS OF COVID-19 VACCINES

The indicators have been developed based on the unweighted average value of a set of questions that evaluate attitude to the effectiveness of vaccines and attitude to the risk and harm of getting vaccinated, respectively. The questions had to be answered with “yes” or “no”. With regard to the risk/harm indicator, the answers that showed perception of risk or harm of vaccines were coded “1” and those that showed lack of perception of risk or harm were coded “0”. With regard to the indicator of effectiveness of vaccines, the answers that evaluated vaccines as effective were coded “1” and those that evaluated them as ineffective were coded “0”. The statements used to develop the two indicators are displayed in the table below.

Statements/questions used for the development of the indicators of risk/harm and effectiveness of Covid-19 vaccines:

STATEMENT	RISK OR HARM	EFFECTIVENESS
Covid-19 vaccines install microchips.	✓	
The people vaccinated against Covid-19 stand lower risk of getting infected.		✓
The vaccines have dangerous side-effects.	✓	
Covid-19 vaccines only aim at boosting the profits of pharmaceutical companies.		✓
Covid-19 vaccines reduce the risk of severe disease.		✓

Covid-19 vaccines reduce the risk of death after getting infected with Covid-19.		✓
The Russian Covid-19 vaccine is better than the ones offered in Bulgaria.		✓
Some of the Covid-19 vaccines in Bulgaria have expired shelf life.	✓	✓
Covid-19 vaccines contain substances that have been proved to be harmful for health.	✓	
Covid-19 vaccines cause sterility or infertility.	✓	
Covid-19 vaccination poses a great risk of negative health implications.	✓	
Covid-19 vaccines are not recommended for many chronic diseases.	✓	
As a whole, Covid-19 vaccines pose greater risks to health than other vaccines.	✓	
Covid-19 vaccination reduces the risk of spreading of the disease.		✓
It is much safer to get vaccinated than to get infected and recover from Covid-19.	✓	
Covid-19 vaccines protect from severe disease, hospitalization and death.		✓
The acquired immunity against Covid-19 of people who got vaccinated after having recovered from the disease is very strong.		✓