

**Influence of Pandemic Fatigue on COVID-19 Vaccination Perceptions
of Young Adult Moscow Population: a Qualitative Study**

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by

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TABLE OF CONTENTS

ABBREVIATION LIST	ii
ACKNOWLEDGEMENTS.....	iii
ABSTRACT.....	iv
INTRODUCTION	1
METHODS	6
RESULTS	9
THEME 1: Signs of pandemic fatigue	9
Feeling of fatigue	9
Indifference to COVID-19	10
Decrease in self-risk perception	11
THEME 2: Reasons of pandemic fatigue	13
Negative emotions and feelings	13
Presence of untrustworthy information	15
Pressure of compulsory vaccination.....	17
THEME 3: Opportunities to overcome pandemic fatigue.....	18
Youths’ values.....	18
Relatives’ influence.....	21
Youth involvement in vaccination advocacy	22
Information provision approaches.....	24
Subcategory: Appealing and interesting information on COVID-19 vaccination	24
Subcategory: Credible sources	27
Subcategory: Persuasive information on COVID-19 vaccination	29
DISCUSSION	31
REFERENCES	38
FIGURES	43
Figure 1: COM-B Model.....	43
Figure 2: Influence of the pandemic fatigue on a motivation component of COM-B Model	43
APPENDIX 1	44
APPENDIX 2.....	48
APPENDIX 3.....	52
APPENDIX 4.....	57
APPENDIX 5.....	61
APPENDIX 6.....	63
LIST OF APPROPRIATE JOURNALS.....	66

ABBREVIATION LIST

CI – confidence interval

COM-B Model – the Capability, Opportunity, Motivation, Behavior Model

COVID-19 – infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2)

ID – identification number

QR-code – quick response code

RBK – RosBiznesConsulting

RIA – Russian Information Agency “Novosti”

TASS – The Russian News Agency TASS

VK – “Vkontakte”, Russian social network

WHO – World Health Organization

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ABSTRACT

Background: On March 11, 2020, the World Health Organization (WHO) declared COVID-19, a disease caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), a pandemic. The Russian Federation was the first country to register and produce a vaccine against COVID-19– Gam-COVID-Vac (“Sputnik V”, registered on August 8, 2020). However, by May 22, 2022, Russia was the seventh-highest contributor of COVID-19 cases and the fourth highest of COVID-19 deaths globally. One of the groups most affected by the COVID-19 pandemic is young people. The vaccination acceptance rate among Russian youth (aged 18-24) was only 33.5% (2020). At the same time, this population group started to demonstrate signs of pandemic fatigue, a phenomenon defined by the WHO as a decrease in the will to follow safety measures or look for information on the pandemic and a decline in self-perceived risks of being infected. A better understanding of people and their involvement in the process of dealing with problems were defined by the WHO as two possible strategies to deal with pandemic tiredness. This study aimed to explore the attitudes and perceptions of COVID-19 vaccinations among young adult Moscow residents two years into the pandemic and investigate participants’ perspectives on opportunities to enhance young adult Moscow residents’ interest in COVID-19 vaccinations.

Methods: The qualitative study was informed by the broad principles of phenomenological research. The study population was young adult residents of Moscow aged 18-24 years old. The recruitment strategies applied included purposive, convenience and snowball sampling techniques. Data collection was conducted via online video-calls starting in March 2022 and continued until the middle of April 2022. Oral informed consent was obtained from all study participants prior to the interview. Two cycles of coding were applied in the analysis. Deductive (based on COM-B Model) and inductive approaches were used in data analysis. Interviews and their transcription were conducted in Russian, while coding, categories and themes elaboration were conducted in English.

Results: Nine interviews were conducted. Six participants were females and three were males, and seven participants were fully vaccinated. In all of the interviews leading issues were connected with pandemic fatigue. Three main themes were formulated: 1) Signs of pandemic fatigue; 2) Perceived reasons for pandemic fatigue; 3) Opportunities to overcome pandemic fatigue. Signs of pandemic fatigue included directly stated feelings of fatigue, indifferent attitudes to COVID-19 and decreased COVID-19 self-risk perception. Perceived reasons of pandemic tiredness development were represented by the negative emotions and feelings associated with COVID-19 and vaccination, presence of untrustworthy pandemic-related information, and feelings of pressure driven by compulsory vaccinations. As opportunities to overcome pandemic fatigue and attract the attention of the young Moscow population, the use of youth’ values such as freedom of choice and socializing, relatives’ influence, and direct youth involvement were proposed. Specific information provision approaches were also mentioned based on information youths perceived as appealing and interesting, credible and persuasive.

Conclusion: Due to the low self-perceived risk of COVID-19 described by the participants, the young adult Moscow population should be specifically targeted in vaccination promotion programs. This study provides an in-depth understanding of perceptions of Moscow youth on COVID-19 vaccinations two years into the pandemic. The findings of the present study reconfirmed the importance of listening to and engaging with the target group, which could help to understand them better and adjust the vaccination promotion campaigns accordingly. Because they are active social members and communicators, share values of social and civil responsibility, and care for their relatives, youth is a great source for action in vaccination and communicating vaccination importance, especially in circumstances of pandemic fatigue. Thus, young people should be listened to and involved in actions to support government-led initiatives. In future studies, the perspectives of broader population

groups should be considered and explored. Quantitative or mixed-method studies examining the effectiveness of the recommendations provided by this paper would further enforce and enhance the findings as well.

INTRODUCTION

COVID-19's causal pathogen, severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), initially appeared in Wuhan, China, in December 2019. The World Health Organization (WHO) proclaimed COVID-19 a pandemic on March 11th, 2020 (World Health Organization, 2020). The virus spread fast: by January 27th, 2021, it infected over 98 million people and killed over 2 million people (World Health Organization, 2021b). According to the WHO, by June 3, 2022, there were 528,816,317 COVID-19 cases and 6,294,969 COVID-19 related deaths globally (World Health Organization, 2022).

In the Russian Federation, the first COVID-19 cases were registered on January 31, 2020, while the mass spread of the virus commenced in March 2020. According to information retrieved on May 22, 2022, Russia was the seventh highest contributor of COVID-19 cases and the fourth highest of COVID-19 deaths globally (Statista, 2022b).

For the period of a month (October 28, 2021–November 26, 2021), the Russian Federation had hit an unprecedented record of 1,000 deaths daily, most of them due to a new, more transmissible variant of the SARS-CoV-2 virus subsequently named Delta. This record was short lived, when cases reached 200,000 daily in February 2022 due to yet another newly emerged variant, Omicron. These numbers represent the highest peaks since the start of the pandemic in Russia. (Government of the Russian Federation, 2022).

At the same time, the Russian Federation was the first country to register and produce a vaccine against SARS-CoV-2 infection – Gam-COVID-Vac, also known as “Sputnik V”. After its registration on August 8, 2020, Sputnik V has been authorized for use in 71 countries (The Russian Direct Investment Fund, 2021). A publication by the developers of the vaccine in the Lancet on the interim results from Phase 3 of the clinical trials claimed the vaccine's efficacy to be 91.6% (95% CI: 85.6-95.2) (Logunov et al., 2021). After that, independent clinical trials on the effectiveness and safety of Sputnik V were conducted in Argentina, San Marino, Hungary. In Hungary, Sputnik V demonstrated an estimated effectiveness of 85.7% in people aged 16-85+

(95% CI: 84.3–86.9%) (Vokó et al., 2021). According to the results from Argentina, the vaccine prevented 78.6% (95% CI: 74.8-81.7) of infections, 87.6% (95% CI: 80.3-92.2) hospitalizations and 84.8% (95% CI: 75.0-90.7) deaths for patients aged 60-79 (González et al, 2021).

A study from San Marino revealed a high tolerance of the Sputnik V vaccine in the population aged ≥ 60 years (Montalti et al, 2021).

The concept of herd immunity, proposed by Kermack and McKendrick a hundred years ago, was considered as a potentially effective tool against the progression of the pandemic. Herd immunity can be achieved when a considerably large portion of the population develops immunity against the pathogen and, consequently, the transmission from person to person becomes unlikely, thus having an impact on the dynamics of the disease (Kermack & McKendrick, 1927). In order to achieve herd immunity, the presence of an appropriate and effective vaccine alone is not enough (Giubilini, 2020). It is important that the population accepts vaccination on a large scale.

In November 2021, Levada-Center (recognized to be a foreign agent by the Russian Federation) published a survey among the Russian population on their attitudes towards COVID-19, vaccination, and measures applied. Despite the downward trend of neglecting to receive the vaccination since April 2021, when it was on the level of 60.0%, the portion of the population that was not interested in getting vaccinated was still high – 45.0% (Levada-Center, 2021).

Solís Arce et al. (2021) published a study on COVID-19 vaccine acceptance and hesitancy in 12 countries, the majority of which were low- and middle-income countries. The results section also implied a situational comparison with Russia and the United States of America. According to the authors, Russia represented the lowest acceptance rate (30.4% (CI 29.1–31.7%)) among the 12 countries examined in November-December 2020.

One of the groups most affected by the COVID-19 pandemic are young people, who are, according to the United Nations definition, individuals aged 15-24 (United Nations Department of Economic and Social Affairs, n.d.). According to the International Labor Organization, although just 13.0% of the total work force, young people constituted 34.2% of the employment decline seen

in 2020, which in its turn had a negative effect on their income (International Labor Organization, 2021). Furthermore, young individuals suffered from disruption in education due to the pandemic (Meinck et al., 2022). Numerous studies touch upon the mental vulnerability of youth in the age of COVID-19, with higher levels of stress, anxiety, and depression compared to other age groups (International Labor Organization, 2020, Varma et al., 2021).

In 2020-2021, the University of Melbourne and WHO conducted a study on the COVID-19-fostered digital crisis in people aged 18-40. Data was collected for 24 countries, including the Russian Federation. One of the key findings of this study was that young people expressed skeptical attitudes towards all COVID-19 related content, regardless of the credibility of the source providing the information. Combining categories of “strongly agree” and “somewhat agree” responses, 55.0% reported that they started to ignore COVID-19 related information, and 54.0% reported that they are overwhelmed with COVID-19 related information. The latter was noted in all countries included in the research (Volkmer, 2021).

Vaccination acceptance has unfortunately not reached levels that would help protect the population from COVID-19. Moscow, as the capital and most populous city in the Russian Federation, with a population of more than 12.6 million people has experienced the highest burden of new COVID-19 cases and instances of hospitalization in the country: 2,766,828 total cases and 43,554 deaths since the start of the pandemic (The Federal State Statistics Service, 2021, Statista, 2022c). Yet, as of January 23, 2022, 6.9 million Moscow residents received at least one dose of a vaccine against COVID-19 (Statista, 2022a). Moreover, adequate vaccination acceptance rates in young people remain to be attained. According to the results derived by Solís Arce et al. (2021), the vaccination acceptance rate in the age category of 18-24 was only 33.5% in the Russian Federation.

According to another study, of the participants from Moscow, 58.4% stated that they started to ignore COVID-19 related information, and 56.0% stated that they are overwhelmed with COVID-19 related information (Volkmer, 2021). The issues of disregarding COVID-19 information and feeling overwhelmed by it demonstrate a phenomenon that has emerged more

recently, that of pandemic fatigue. According to the WHO, tiredness is a natural reaction to the negative events that are unsolvable. The tiredness could be expressed as a decreased will to follow safety measures or look for information on the pandemic and a decline in self-perceived risks of being infected (WHO Regional Office for Europe, 2020).

In an effort to control the pandemic in the Russian Federation, certain measures were taken such as mandatory vaccinations (vaccination certificates with QR-codes were imposed to confirm vaccination status) for some categories of the population and for visiting social places (Office of the Federal Service for Supervision of Consumer Rights Protection and Human Welfare in Moscow, 2021). Considering these measures along with the prolonged effects of the pandemic that influence people's lives whereby people feel as though they have not had any control over this process, unwillingness to be vaccinated could be seen as a manifestation of self-determination and freedom (WHO Regional Office for Europe, 2020).

In a more general sense, tiredness decreases the motivation of people, which is one of the main drivers for vaccination behavior according to the COM-B model, a framework adopted by the WHO to explain vaccination decision-making specifically (Figures 1 and 2). A central component of the COM-B model is represented by an individual's vaccination behavior. The vaccination behavior of an individual is defined by three of the other components of the model: capability (C), opportunity (O), and motivation (M) (Copenhagen: WHO Regional Office for Europe, 2019). Capability is an individual parameter represented by "knowledge, skills and trust in own skills, will power and surplus energy, physical fitness and ability." Opportunity is a contextual component that is divided into two dimensions: a "physical opportunity" (e.g., access, affordability, convenience, rights and regulations) and a "social opportunity" (e.g., social, cultural demands, support, social and cultural cues, values and norms). Motivation, an individual COM-B component, is defined by an individual's "attitudes, perceptions, risk assessment, intentions, values and beliefs, emotions, impulses and feelings, confidence, and trust" (Copenhagen: WHO Regional Office for Europe, 2019). According to the WHO, a better understanding of people and their involvement

in the process of dealing with problems are two of four strategies for policies to be formed in order to overcome the phenomena of tiredness (WHO Regional Office for Europe, 2020).

Taking into consideration the above-mentioned implications and the lack of research specifically examining vaccination acceptance among youth in the Russian Federation, and more specifically in Moscow, this study aimed to explore the attitudes and perceptions of COVID-19 vaccinations among young adult Moscow residents two years into the pandemic and investigate participants' perspectives on opportunities to enhance young adult Moscow residents' interest in COVID-19 vaccinations.

METHODS

A qualitative study design was selected due to the objectives of the study, which were to reveal the perspectives of participants on COVID-19 vaccination and information about it. The qualitative nature of the research provided an in-depth understanding of the issue of vaccine acceptance in circumstances of pandemic fatigue and as well provided an opportunity to give a «voice» to young Moscow residents' perspectives. The study design also allowed for the consideration of the phenomenon in its natural context. The qualitative investigation was informed by the broad principles of phenomenological research, as it provided data about lived experiences of participants on COVID-19 vaccination and interaction with information on COVID-19 vaccination, its understanding, and interpretation. Based on phenomenological research approaches, in-depth interviews were conducted.

The study population was young adult residents of Moscow aged 18-24 years old. Inclusion criteria were being 18-24 years old, being a current Moscow resident (since 2020 and earlier) and being fluent in Russian. Those with contraindications for COVID-19 vaccination (based on the contraindications for some of the COVID-19 vaccines provided in the Russian Federation, e.g., hypersensitivity to the vaccines' components, severe allergic reactions in medical history, severe post-vaccination complications and malignant tumors) were excluded.

Data collection started in March and continued until the middle of April, 2022. The initial recruitment strategy based on purposive sampling failed to enroll a single participant out of the 14 individuals approached via the Russian social network website «Vkontakte»; 13 provided no response whereas one refused to participate in the study. Due to this fact and due to time constraints, a transition to convenience and snow-ball sampling techniques was done. With the use of the two latter strategies, the study participants were successfully recruited.

Two semi-structured interview guides with open-ended questions were developed for vaccinated and non-vaccinated participants. The interviews were conducted in Russian via online video-calls in a Zoom format. Each interview guide consisted of three parts: (1) questions revealing

attitudes, knowledge, and perceptions on COVID-19 vaccination in general; (2) perceptions of COVID-19 vaccination information; and (3) perceptions on the potential of improvements of COVID-19 vaccination information dissemination mechanisms and increased attention and trust towards it.

The study protocol was approved by the Institutional Review Board #1 of the American University of Armenia (#AUA-2022-007). Prior to the interview, oral informed consent (Appendices 5 and 6) was obtained from all study participants. Confidentiality of all information provided by study participants was guaranteed by the student investigator. During the study, except for the participants' names, no identifiable information were obtained. Participants' names were given directly by the participants or by their acquaintances (if recruited via snowball sampling). During the interview the names of participants were not asked. Confidentiality of the participants' names was guaranteed by several actions. During the interview only audio was recorded by personal phone and then transferred to the password-protected folders prior to being deleted from the phone. Throughout the study, a 3-2-1 backup strategy was used to store the research data. The file with names and participants' IDs and transcribed texts were stored separately in password-protected folders on the student investigator's personal laptop, hard disk drive and Google Drive account. Only the student investigator had access to the file with names and participants' IDs. In the final report, only IDs were used. Files with names linking IDs were deleted after the completion of the study.

Transcription and data analysis were conducted simultaneously. Code and meaning saturation were reached with 9 participants. To apply the iterative approach in the research, the records of interviews were transcribed verbatim within 3 days after the completion of interviews. The texts were read several times and coded. Two cycles of coding were applied in the analysis after which codes were clustered in categories, and categories into themes. A deductive approach was used for category identification which was based on the COM-B model (Copenhagen: WHO Regional Office for Europe, 2019). For the remaining categories, themes and codes elaboration,

an inductive approach was used. Transcription and initial coding were conducted in Russian, while second cycle of coding, categories and themes elaboration were conducted in English.

RESULTS

Of the 24 individuals contacted (13 females and 11 males), 13 potential participants did not reply to the invitation, and one refused to participate. Those who didn't reply or refused were reached with purposive sampling. Ten participants (six females and four males) initially agreed to participate in the study and were recruited with convenience and snowball sampling. One male (recruited via snowball sampling) later refused to participate stating that he was "misinformed" about the format of participation in the study by his acquaintance. Of the nine study participants, six were females and three were males, and seven participants were fully vaccinated.

Despite the fact that the questions posed to the participants of the study were broad and aimed to explore their general attitudes and perceptions of COVID-19 vaccinations and information about it, it was noted that the leading issues (raised or indirectly stated) in all of the interviews were those related to pandemic fatigue, including its signs, reasons and opportunities to overcome it. In this regard, three main themes were formulated: 1) Signs of the pandemic fatigue; 2) Perceived reasons for the pandemic fatigue; and 3) Opportunities to overcome the pandemic fatigue.

THEME 1: Signs of pandemic fatigue

The signs of pandemic fatigue in the participants constituted the first theme. Participants stated feelings of fatigue, as well as other signs pertaining to it, such as indifferent attitudes towards COVID-19 and the vaccination, and a decline in their self-perceived risk of being infected with the virus or having associated complications.

Feeling of fatigue

Some of the participants directly mentioned that they had a feeling of fatigue with respect to the pandemic. The feeling of tiredness was mainly explained through the burden caused by the negative, intense and prolonged discourse on COVID-19.

"... there is something about fatigue, starting from the spring of 2020 to January of this year, I can say that the attitude towards the epidemic has probably become more or less neutral. Personally, in my mind, it has turned into something that we

will probably live with. Like the flu, which you need to constantly get vaccinated against... You get more tired of some news about this: sick, dead [people], you want to somehow get out of this information field because this oppressive atmosphere from alarmists really makes me feel stressed, and the very fact that this is happening is no longer there, it's already necessary to live it."

Vaccinated male, 22 years old

Notably, participants did not associate their feeling of tiredness with COVID-19-related safety measures, such as wearing masks. It was commonly stated by the participants that they had adapted to them and did not feel any discomfort related to these measures.

Indifference to COVID-19

It was observed that, among the participants, the feeling of fatigue was closely related to their indifferent attitudes towards COVID-19, the vaccination and information related to the pandemic.

A female, who expressed her attitude towards vaccination as a highly necessary tool to stop the pandemic and was involved in vaccination promotion among her acquaintances (this type of participant will be referred to as strongly pro-vaccine throughout the text), also stated that she lost interest in COVID-19 and felt as if the virus "was no longer there":

"And somewhere from February to March, I don't know, maybe feelings for the coronavirus have already cooled down. Well, it's still there, that's all, of course. We just have to live with it, accept it. And I somehow didn't worry and didn't read, and didn't look, as if it was no longer there."

Vaccinated female, 19 years old

Participants stated that they "got used to the virus", "all information [about COVID-19] is the same" and any COVID-19-related information was entirely "informational trash".

"This certainly useful information, with its abundance, turns into informational trash. It doesn't matter at all how many people got sick, died, you look at these

statistics, and the more it is in front of your eyes, the more you absolutely don't care about it."

Vaccinated male, 18 years old

As a result, some participants started to ignore COVID-19-related information. For example, some of them forgot about the voice and video messages about COVID-19 safety measures that they heard and saw every day in the underground, and only could recall seeing them after a reminder by the interviewer. Remarkably, one of the participants did not know the name of the most prevalent variant at the time of the interview COVID-19.

"I never found out what it's called, amicron [a participant pronounced in this way], right? I heard like a couple of times when it all started ... Well, that was the reaction. I heard and did not care.... You just get used to it, you get tired, and generally don't care what other "crons" [consonant with Omicron] they come up with."

Vaccinated male, 18 years old

Decrease in self-risk perception

The majority of respondents stated that they perceived their risk of being infected with COVID-19 and having complications as low.

"I just don't see it as a big risk, some big panic. At first, it was scary to get sick when no one knew what it was or what to do about it. And now, in principle, well, I'll lie down with a temperature, it's okay. I can get sick from the flu or something else. It has become such a common thing that it no longer scares me."

Unvaccinated female 1, 19 years old

"...it seemed to be a new disease that will now be with us every year. There will be outbreaks, just like the flu. And I guess I got it somehow. Such a modified version of the flu is there, I don't know, ARVI [acute respiratory viral infection]. And in

general, it has become easier to somehow relate to both numbers and the vaccine.”

Vaccinated female, 19 years old

As it could be seen from the above-mentioned quotes, the comparison of COVID-19 with the flu was common. The participants expressed complacency with being infected with COVID-19 and spending “a week” being ill.

Participants’ decline in self-perceived risk was also defined by their attitude towards the COVID-19 situation as stabilizing, as well as by the perception of Omicron as an “easy strain”.

“...when they say, that Omicron, in general, everything [the pandemic] can all finish and that it [Omicron] is easier to tolerate than some other strains. You think:

“Oh cool, so you definitely can be not-vaccinated, there is no threat.”

Unvaccinated female (2), 19 years old

In connection with this, participants’ perception of the necessity to revaccinate (i.e., get an additional dose after the expiration of their vaccination certificate with QR-code) was weak. Only two participants stated that they would revaccinate following the schedule, while others, including two strongly pro-vaccine individuals, had doubts over the necessity of revaccination.

“...when the QR code was canceled, I had not yet been revaccinated. And now I don’t even know if I’m going to get revaccinated, probably I won’t go. Somehow this era has already ended for me, another has begun. Most likely I will not revaccinate.”

Vaccinated female, 19 years old

Lack of policy guidance, long-term vaccination strategy, or inconsistency in the communication of safety measures to the public also influenced the revaccination intentions of the participants.

“... We were allowed not to wear masks at all. Is this a signal that you can no longer worry about the coronavirus? ... I still do not understand if I need to be revaccinated. I need information about revaccination.”

Vaccinated female, 23 years old

“I probably think that it should be some kind of long-term perspective. For example, once a week, once a month on the most popular social networks ... Well, in general, this should accumulate a little bit. This is not because the COVID is over and we should already forget everything, forever about it ... And slowly, slowly, well, maybe by September they would have reached that people, well, they will maybe understand...”

Vaccinated female, 19 years old

“Probably, all the same, a frank dialogue with representatives [of authorities], where, indeed, about the side effects and all the good things, of course, could have some positive effect.”

Vaccinated male, 22 years old

As explained by the participant in the previous quote, the interviewees also said that there is a need to create communication channels between the authorities and the population. Therefore, clear guidance on the revaccination process for the young adult Moscow population would be a necessary step in the promotion of vaccination among these individuals.

THEME 2: Reasons of pandemic fatigue

The second theme was represented by the reasons for fatigue. These included negative emotions associated with the pandemic, the presence of untrustworthy information, and pressure of COVID-19-related restrictions and compulsory vaccination.

Negative emotions and feelings

As part of the “motivation” element in the COM-B model, emotions and feelings were affected by pandemic fatigue. Emotions and feelings associated with COVID-19 vaccination and

COVID-19 in general (participants frequently did not separate their perceptions and attitudes towards COVID-19 in general and the vaccination specifically) were mainly represented by negative feelings, including fear (of vaccination side-effects and complications), anxiety, discomfort (associated with the compulsion to get vaccinated), sadness (due to low vaccination rates), being undecided against vaccination, rejection (due to compulsion to get vaccinated), and annoyance (because of formality, “nonsense”, or people believing in myths). Several of the above-mentioned feelings are illustrated below.

Fear:

“Fear of [vaccination] side effects. Fear for your health.”

Vaccinated female, 23 years old

“People are afraid to get vaccinated...because the vaccine is less than 3 years old. It has not been tested there and has not been verified yet in fact. And people are still afraid of what consequences may be there, in a few more years, which definitely could not be studied earlier.”

Unvaccinated female (1), 19 years old

Being undecided against vaccination:

“That is, the same thing regarding the issue of vaccination, many opinions did not develop. Although the opposite happened, they hung in limbo. Like a donkey that cannot decide between two haystacks.”

Vaccinated female, 23 years old

Annoyance:

“[COVID-19 statistics] is an eyesore, [I] do not like [it], [it is] annoying.”

Vaccinated male, 22 years old

Anxiety:

“News about COVID caused wild anxiety. This feeling...a lack of understanding of what will happen.”

Unvaccinated female (1), 19 years old

Anxiety and fear were mentioned by participants when asked about their attitudes toward COVID-19 vaccination information. They emerged from the feeling that information is scary, "apocalyptic" and "forced into the mind". It was noted that when the participants were asked about their attitudes towards information on COVID-19 vaccination, in the majority of cases they tended to provide their perceptions of information on COVID-19 in general. Thus, the vaccination was seen and perceived through the lens of COVID-19 as a whole.

"I remember these pictures, from my 11th grade. Well, at first it was a little scary, here, mortality, here is some kind of wild picture. Crossed out man."

Vaccinated female, 19 years old

"And when some kind of apocalyptic literally message. What is there COVID-19. This is all causing some anxiety. And you don't want to hear it."

Unvaccinated female (1), 19 years old

Presence of untrustworthy information

Widespread untrustworthy information and sources providing it provoked distrust and pandemic fatigue among participants towards all information on COVID-19 and vaccination specifically. Information and sources mentioned by the participants as untrustworthy shared the following characteristics: politicized and judgmental (mainly on television), emotionally appealing, anonymous (posts on social networks), and provided by an unqualified individual with financial incentives (bloggers).

"...about VKontakte, then it is generally not clear who wrote this, who is responsible for this information... As for the TV, distrust is explained by the fact that, well, there is often some kind of distortion of information, that is, events are covered with a bias. That is, on TV, half of the air is occupied by value judgments, yes. And I can see very clearly that they always occupy a certain position right on a

certain channel. And that is, the information is somehow distorted, presented in such an inverted form that I just can't believe it."

Vaccinated female, 23 years old

"I would like to name the Lancet [as trusted source], but lately it has been a little discredited not scientifically, but politically."

Vaccinated female, 24 years old

A number of the participants considered the information on COVID-19 vaccine effectiveness as untrustworthy as well. This was supported by a poor perception of risk and the fact that vaccinated individuals still can get the disease. This impression was based on the participants' awareness of COVID-19 cases in the vaccinated individuals.

"According to my feelings, the risk of getting sick after vaccination does not change ... there is a lot of information that a person has been vaccinated and still gets sick.

You get the impression that you get vaccinated and your risk of getting sick is maybe 5-10% lower...or it just stays the same."

Unvaccinated female (2), 19 years old

Notably, the majority of participants mentioned the importance of critical thinking skills. In this regard, it is important to mention that despite remembering the myths regarding COVID-19 vaccination, such as the insertion of microchips, denial of the existence of COVID-19 or the exaggeration of pandemic-associated threats, deliberate mass extermination of humankind, and infertility risks, respondents personally did not believe in them. There was one unvaccinated female participant who did express her concerns about fertility threats posed by vaccination as she was warned about it by a physician close to her family.

"... the main factor, which, well, which is important for me and was so decisive, is that the doctors of my parents' acquaintances said that if you have not had children yet, and you are planning to give birth, then it is better not to vaccinate. And for me

it is very important, and I would very much not want to risk it. That's why I did not get a vaccine.”

Unvaccinated female (2), 19 years old

Another participant confessed that her sibling who is a doctor believed the same myth and promoted it among his patients.

“My brother is also a doctor, he is an obstetrician-gynecologist, he is 33 years old...he told his patients that there was no need to be vaccinated... Not what you expect from a doctor, that he says that you do not need to be vaccinated against what surrounds you, which can have some negative consequences to the same pregnant women. He explained it because it is some kind of chemical element that is being introduced [to a body]. All this will negatively affect the biological component of a pregnant woman. He started from the fact that this is something that has not yet been explored enough.”

Vaccinated female, 19 years old

Pressure of compulsory vaccination

Several participants mentioned that their trust toward COVID-19 vaccination was undermined by compulsory vaccinations. They felt there was “a hidden meaning” if they were forced to get vaccinated. This was closely connected to the value of freedom of personal choice that emerged within the frames of the third theme.

“When it was maximally obligatory and literally forced - rather negative, because it was incomprehensible... because there was no possibility of choice in general ... Probably distrust... It seemed that perhaps there is some hidden meaning, why something is being actively called for in this way. Perhaps something was wrong, it was suspicious, let's say so.”

Vaccinated female, 24 years old

A participant who was not vaccinated at the time of the interview felt utter distrust towards vaccination due to its compulsory nature, while initially being keen on it.

“There was a moment when it [vaccine] just appeared ... It aroused interest. So, I could discuss it [information], say it ... share it. ... I was disappointed in this when they began to force them to be vaccinated. When my mother, as a civil servant, was told: “here, you go and do vaccination,” I realized that something was not right here ... So, I somehow stopped being interested in this, because I was disappointed in this.”

Unvaccinated female (1), 19 years old

THEME 3: Opportunities to overcome pandemic fatigue

Results presented in this theme were explicitly and implicitly stated as opportunities to overcome fatigue in respect to the COVID-19 vaccination and/or to enhance attention and interest in the information on it.

Youths' values

Freedom of personal choice was one of the core values among youth affecting their attitude towards vaccination and decision to get vaccinated. It was universally acknowledged among the interviewees that vaccination “should be a personal choice”.

“Well, I think it [vaccination] is up to everyone anyway... I believe that the person himself must make a decision.”

Unvaccinated female (1), 19 years old

“Well, I believe that any intervention in the body is a voluntary decision... I don't think it should be a requirement.”

Vaccinated female, 24 years old

“Someone can decide to be vaccinated, someone can decide to be not, this is their personal responsibility. But doing it under compulsion is wrong.”

Vaccinated female, 22 years old

Despite the fact that several participants said that individuals without contraindications “should” get vaccinated to protect others who are unable, none of the participants expressed support for compulsory vaccinations. That, on the contrary, provoked distrust, reluctance and pandemic fatigue. One of the participants stated that initially, she supported mandatory vaccinations, but changed her mind after one of her acquaintances experienced post-vaccination complications that the participant associated with a lack of examination before vaccination. Thus, freedom of personal choice could be defined as one of the main values of this population.

Another important value leading youth to vaccination was the opportunity to socialize. It highly motivated youth to get vaccinated in order to attend social events, receive off-line university education and “feel freedom”.

“Why did we do it [vaccination]? Because at that time there were too many events, places required a QR-code. I wanted to feel free, I didn’t want to be a person who is not allowed to go somewhere.”

Vaccinated male, 18 years old

“...my environment is mostly students, [vaccinated] for the same reason that I am [forged QR-code]: to study normally and exist normally in Moscow.”

Unvaccinated female (1), 19 years old

It can be seen from the quotes above that contrary to youth's reactions to compulsory vaccination that provoked reluctance, participants were willing to get vaccinated in order to overcome limitations posed in the spheres of life valuable to them, such as receiving off-line education or visiting social places.

A number of participants, specifically supporting vaccination, stated that they were motivated by civic or social responsibility and common vaccination benefits.

“... yes, I agree that everyone who has the opportunity, they should be vaccinated not only for themselves but for their grandmothers, grandfathers, in general, just the population that surrounds them.”

Vaccinated female, 19 years old

“In theory, this should be a conscious and responsible choice of every person... He/she must have a certain level of civic social responsibility. Well, that's how it works in a healthy and normal society. People don't need to be forced.”

Vaccinated female, 23 years old

“Let my contribution be scanty, but I will help stop it [pandemic]... [I wanted] to help the world in a global scale to deal with this problem.”

Vaccinated male, 23 years old

In contrast, individuals hesitant to vaccination highlighted personal interests in vaccination over common benefits.

“... the person himself must make a decision. That is, he must think about some of his closest people. But why a person should [get vaccinated] for the sake of some person whom he will one day meet on the subway is not entirely clear. ... there are several millions of the population of Moscow, then, probably, this is not very correct.”

Unvaccinated female (2), 19 years old

“I am in favor of taking care of society. However, I always try to remember about some of my own priorities, and about taking care of myself ... for me, well, my personal health is still a priority. When I was deciding whether to vaccinate, many doctors I knew told me that, well, they warned me about some consequences for my personal body that I could experience and because of this I decided not to vaccinate.”

Unvaccinated female (1), 19 years old

Less frequent values were travel opportunities and participants' perceived need to follow state recommendations (i.e., get vaccinated because it is right thing to do).

One of the notable findings was that one of the female participants stated that she did not know a single vaccinated person her age who was motivated by concern for their health.

“To be honest, I don't know, probably, a single person who just got this vaccine so as not to get sick ... Well, really, no one had such a motivation as “I'm afraid of getting COVID, so I'll get myself vaccinated.””.

Unvaccinated female (2), 19 years old

Relatives' influence

While youth's perceptions of risks of being infected or having complications related to COVID-19 were low, a majority of the study participants considered their older relatives as being high risk. The reasons for vaccination for these respondents included to be able to live in one household with their older family-members or to visit them.

“It's not that I'm worried about myself, I can bear it [COVID-19] without symptoms. But if you get vaccinated, you can be calm for your relatives ... I visit them periodically. And visiting them in “bulletproof vest” is much better.”

Vaccinated male, 22 years old

“I wasn't afraid to get sick. Honestly, I don't know. No, but the fact that my parents get sick, they are 55-56 years old. Yes, I was very afraid. I didn't visit them. I've been very worried about them. This is, in general the third group of the population [speaking about different reasons motivating youth to get a vaccine], a group of young people who were worried about their relatives.”

Vaccinated female, 19 years old

Relative's influence was also expressed as reliance on parents' recommendations or even acting “under their rule”. It was a distinguished phenomenon, especially in younger participants (aged 18-19) who continued to live together with their parents or were financially dependent on

them. Parents' support of or opposition to vaccination in fact defined the decision of a young individual.

"My mother agitated me to go and get vaccinated... We [me and my girlfriend] were stimulated [to vaccinate] by parents".

Vaccinated male, 18 years old

"[Parents] ... thought for themselves and for me whether I should get vaccine. I don't know, well, I lived still with my parents when [pandemic] started, who completely funded me. In my family, I can sort of state my position, but the decision will not be made by me."

Unvaccinated female (2), 19 years old

Youth involvement in vaccination advocacy

It emerged from the collected data that young individuals were interested in sharing their personal experiences and attitudes toward vaccination as well as the experiences and thoughts of their peers. For example, some of the participants stated that they posted or were ready to post information on their social networks, sharing their vaccination status, their experience of getting the COVID-19 vaccination, their thoughts on the importance of vaccination and addressing myths about vaccination.

"I set the status that I am vaccinated in VK. Plus, when there were discussions on the topic of vaccination, I tried to provide this objective point of view, to destroy myths."

Vaccinated female, 23 years old

"I also published a post on my social network, on Facebook or where, I don't remember, that the vaccine is not like in Malysheva's video [Russian health TV-show] about the vaccine, when cervical cancer and hepatitis suddenly recede magnificently, but really a working thing that we should not be afraid of."

Vaccinated male, 22 years old

“I tried to promote among those who doubted. Sometimes I succeeded.... It was just casual communication... [I mentioned] the advantages of the vaccine and recalled that we were all given vaccines in childhood. And for some reason, no one says anything against them.”

Vaccinated male, 23 years old

“Well, I would post [information in my social networks] about my personal experience. That is, let's say how [vaccination] passed for me, there, I don't know, it was quick and not painful, preferably [participant laughed]. So, I would share [information on] what this can mean for all of us. That is, if I am convinced that it works there. I would probably talk about this flattening the curve, herd immunity, but so far, I don't have a vaccine and I'm unlikely to have it at all.”

Unvaccinated female (2), 19 years old

Peers' personal vaccination experience and decision to get vaccinated shared in posts on social networks were mentioned as also potentially useful, as they tend to provoke a feeling in youth that vaccination is the right thing to do.

“I remember the post of the poet [name of the poet, deleted]... which, in general, posted a photo: "I got vaccinated. And you do it too, why didn't you get vaccinated?". And blah blah blah... Well, you know, it's probably nice to see when people close to you in spirit do the same as you. There is some confidence. Well, I can't say it didn't work. Well done, [name of the poet, deleted].”

Vaccinated male, 18 years old

“I was somehow worried, because the more I saw them [acquaintances' posts in social network]... every time I thought again: “maybe I still need to get this vaccine, because I can really get sick?”.”

Unvaccinated female (2), 19 years old

Nevertheless, one participant confirmed that their acquaintances could be forced to publish such posts.

“... Many among university colleagues even published in stories that they had been vaccinated. So... I immediately thought about why they were forced to do this, because, well, I think that this is so.”

Unvaccinated female (2), 19 years old

Information provision approaches

As one of the opportunities to overcome pandemic fatigue, it could be useful to change how vaccination information is provided, for example, through the provision of information which participants consider to be appealing, interesting, credible and persuasive. These findings were further classified into subcategories.

Subcategory: Appealing and interesting information on COVID-19 vaccination

The interviewees provided a vast description of appealing and interesting information on COVID-19 vaccination, including its types, characteristics, and forms. Participants noted that they were mainly interested in scientific information and original research results. Nevertheless, participants stated that it is important that the information is comprehensible to them and that they could easily understand a message. They mentioned that it could be presented as information from the original studies adapted for a reader, for example, in a format of popular science (i.e., scientific information adapted for the general audience).

“Well, I read all the studies in the Lancet, and this is the Argentine study [study conducted in Argentina in 2021 to test effectiveness of the first component of the Gam-COVID-Vac (Sputnik V)].”

Vaccinated female, 23 years old

"For me, yes, indeed, some scientific publications in very trusted publications could be a key factor for me to change [a vaccination] position. That's because I'm in this scientific environment. Yes, I understand that if there is an article published here

[scientific journal], it means that it just went through a long way and this information has been verified... ”

Unvaccinated female (2), 19 years old

“At first there were many medical articles, a lot of terms. I remember that it was probably the beginning of 2021. I didn't understand anything. I thought, why they publish this, if, well, the average mass of the population will not understand it anyway...I think, by the summer, they began to publish very short articles, very simple. Even in pictures, they explained how this vaccine works. It has become very accessible.”

Vaccinated female, 22 years old

The participants stated that the messages should inform a reader about the virus and the mechanisms of action of the vaccine, as well as vaccine effectiveness (e.g., proportion of vaccinated people who got ill).

“The basic presentation of information that would help simply increase the knowledge of the population, both about the virus itself and about the vaccine.”

Vaccinated female, 24 years old

Another type of information the participants were interested in was mainly connected to vaccination convenience, such as its accessibility (points of vaccination) and vaccination certificate's acceptance in other countries.

“Availability. I was very pleased to learn that PCR testing centers are opening. Nearby, right at the same point, you can get yourself vaccinated, you only need to have a health insurance certificate with you. Therefore, I would be happy to hear information about availability.”

Vaccinated male, 22 years old

In terms of characteristics of the information, the majority of the participants stated that it should be factual in its nature, clear, easy to read, concise, and result-oriented, rather than processes.

“...Moscow news. They write in a simpler way what is written in some big article. They make a short cut. And you get the main information from this... such news is more convenient to read, especially when you are a little interested. You don't want to dive into it. This is the best option, for such an everyday experience, it is enough.”

Unvaccinated female (1), 19 years old

“...it's good that there are many places, especially in my favorite sources of mass information that I trust, such information [about vaccine mechanisms of action and its effectiveness] is given and explained. there is an article: "here, they [Lancet] wrote about us, studies were carried out, and everything is great, everything is cool."... [they provide information] focusing on the result, not the process.”

Vaccinated male, 22 years old

According to the participants, information should not provoke a feeling of pressure and give room for personal choices that are aligned with youth's core values.

“Some threats rather act on me in a repulsive way. Now that doesn't work on me as much as if I'm asked to contribute to something out there, to take care of something, because... I want it to be my decision.”

Vaccinated female, 23 years old

Heavy interest was also demonstrated towards non-formal, personal information (e.g., personal stories of medical workers, documentaries with professionals).

“Well, let's say a personal history of a doctor – that would be interesting. You can probably see this, yes, when it's about people.”

Vaccinated male, 18 years old

“Rather, [it is interesting to have an interview] not with the developers of the vaccine, but with the heads of doctors of hospitals working in the red zone, who could talk about what they have to face, what are the consequences for those who are not vaccinated. Because when traveling to a COVID hospital, you can see people whose lungs are about to fail. Which lie with this device [mechanical ventilation]. This is such a contrast, which probably pushes us to draw some conclusions.”

Vaccinated male, 22 years old

“...documentary [could be made]. The documentary seems to be difficult to make, but on the other hand. If only there were some personal stories. And to distribute this documentary is, as it were, very quickly, you can do it here.”

Unvaccinated female (2), 19 years old

Regarding the preferred forms of information, participants mentioned the benefits of different types, including text, pictures, infographics, and videos. Two respondents mentioned that they preferred the color blue (turquoise) as it is associated with the color of medical uniforms. Interest in a visual demonstration of the vaccine’s protection mechanisms was also expressed.

“...In the format of a picture, a bright poster. Preferably turquoise with white text. The color of these medical gowns.”

Vaccinated male, 22 years old

“Probably text, backed up by some kind of chart that shows something...Yes, some text and infographics. Here. Probably optimal.”

Unvaccinated female, 19 years old

Subcategory: Credible sources

Credible sources mentioned by the participants involved original studies, independent foreign studies, sources with factual reasoning, and sources supported by references. Specific names of trustworthy mass media sources included RIA, RBK, BBC, Village, Meduza (recognized

to be a foreign agent and defined by one participant as not trusted), TASS, and Kommersant. Participants mentioned that these sources shared the information based on the original studies, in a comprehensible way, applied factual reasoning, were independent and time-tested.

“Well, in general, I kind of read the news in telegram channels, such as the BBC, Village, Meduza [recognized to be a foreign agent]. In general, when it was not closed, I liked analytical meta-reviews, but written in popular language.”

Vaccinated female, 23 years old

“This information [about COVID-19 vaccination] often comes across to me on time-tested sites, such as RIA, TASS and Kommersant ... [the most reliable are] probably RIA and RBK. Because I don't seek to trust some publics on social networks. Just like the new media...RBK, RIA, TASS and Interfax - they usually do not lie and coincide with each other. Unlike some Meduza [recognized to be a foreign agent] or VKontakte publics, they like to shout, make noise, and they don't like to specifically convey facts.”

Vaccinated male, 22 years old

Several participants shared their perceptions on the information provided by official sources (Government, Ministry of Health, Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing). It was characterized as transparent, comprehensible, consistent, short, useful, trusted and partially trusted.

“I would say that the information there was accessible enough. Everything was written in a way to be understood by a usual individual who does not deal with medical sphere.”

Vaccinated female, 22 years old

“In general, the information is understandable... Well, what is presented is capacious, clear.”

Vaccinated female, 24 years old

“As for me, it’s very clear, there are all the columns, everything is written, hospitalization, mortality. How many in each region. Sometimes it is interesting to watch not only in Moscow, but for me in the Kaliningrad region. I’m wondering if this is a danger to my parents or not.”

Vaccinated female, 19 years old

“A reliable source, this is our Ministry of Health, yes. Friends of friends work there and do not lie.”

Vaccinated male, 22 years old

Partial trust in information provided by the official sources was mainly explained by the government having their “own interests” (e.g., “to organize society in a critical situation”) and its inability to collect complete information (e.g., on COVID-19 incidence).

Subcategory: Persuasive information on COVID-19 vaccination

Concerning the format of information that would be most persuasive for youth, the interviewees stated that the information should be provided in a non-emotional way and based on facts, rather than opinions. They also mentioned that a source should be objective and not politicized.

“...I take information exclusively from there ... because there is no emotional resonance. The mood is absolutely neutral. News as news. As a fact.”

Vaccinated male, 22 years old

“...on RIA there was again the minimum amount of something judgmental and invented, and the maximum number of facts simply stated...”

Vaccinated female, 23 years old

According to the interviews, youth have confidence in trusted opinion leaders who have expertise (not only in medicine) and a good reputation.

“Today, practically, well, from my generation, my circle of friends, everyone knows who Guriev [Sergey Guriev, Russian professor of economics] is, who Shulman

[Ekaterina Shulman, Russian professor of political science, recognized to be a foreign agent] is. And so, when such educated people speak, you probably listen to their position, because you trust their experience, including their experience of being in such a scientific environment. So, I think, that is, somehow it would be possible to raise some kind of awareness through respected personalities such, but respected not by the number of their audience, but by the quality.”

Unvaccinated female (2), 19 years old

“So I think that if there was a doctor...who I know that he/she is cool, that he/she has nothing to do with the authorities, that he/she is just a doctor and just doing his/her job...he/she will speak sincerely, what he/she really knows, and not what he/she was told to say...Well, because the doctors who conduct research. They know more than us anyway. Here, it could affect me.”

Unvaccinated female (1), 19 years old

One participant mentioned that knowing that the majority of the population is vaccinated also could be persuasive for her.

“[To persuade people, messages should inform them] that vaccinated – they are the majority, so that the rest would join them. Standard propaganda trick. And the unvaccinated are an absolute minority. That this is socially significant behavior, so that a person wants to feel part of the majority.”

Vaccinated female, 23 years old

DISCUSSION

Due to the low self-perceived risk of COVID-19 described by the participants, the young adult Moscow population should be specifically targeted in vaccination promotion programs (World Health Organization, 2021a). This study provides an in-depth understanding of the perceptions of Moscow youth on COVID-19 vaccinations two years into the pandemic. Signs of pandemic fatigue, as recognized by the WHO, were noted in all participants of the study, including indicating pandemic fatigue, indifferent attitudes towards the virus and information related to it, and a decline in self-perceived risk. Possible reasons of pandemic fatigue in the young adult Moscow population, such as pressure by compulsory vaccination and negative emotions and feelings associated with the pandemic, emerged from the data collected.

Approaches that could be applied to increase vaccination acceptance, trust and interest were among some of the findings of the study. These included the initiation of vaccination promotion based on youth's values, such as having opportunities to socialize, use of limitations (e.g., on visiting social places or receiving off-line education) instead of compulsory vaccinations and taking into consideration the youths' value of freedom of choice. The perception of older relatives being at high risk of COVID-19 and need to care for their health and life, as well as direct advocacy through parents as well as healthcare workers, could also be methods to increase vaccination acceptance among the youth in Moscow.

Participants expressed their susceptibility to peers' opinions and experiences shared on social networks. Moreover, some of the participants reported that they had posted or were planning to publish information on social media regarding their vaccination status, their experiences, views, and emotions related to vaccination. Thus, they have the potential to become vaccination advocates and the motivation to share their personal positive vaccination experience should be raised.

Some of the specific vaccination information provision approaches that could be beneficial for raising attention and trust of Moscow youth included provision of vaccination-related information through non-politically involved trusted opinion leaders with expertise in various

scientific fields. Moreover, it was found that it would be important to consider presenting information orientated to common benefits of vaccination to pro-vaccine individuals, and information highlighting the individual benefits of vaccination to vaccine-hesitant youth. In further vaccination promotion campaigns, it is also important to consider other possible stimuli, not only health-related, that would be perceived by youth as significant ones.

Of note was the strong interest observed among the youth in regard to personalized information. Therefore, documentary-style media with personal stories and open discussions with medical professionals could be potentially beneficial in increasing vaccine acceptance among this population. An open dialog on vaccination with the representatives of authorities alongside clear and definite communication of long-standing vaccination strategy (e.g., needed frequency of receiving additional COVID-19 vaccinations) also has the potential to enhance trust towards vaccination and support the young population in adherence to safety measures.

Despite the fact that pandemic fatigue is quite a new and not-yet-fully-explored phenomenon, some of the study findings are in line with findings from previous studies. For example, one of the “symptoms” of the pandemic fatigue denoted by the study participants was the decrease in self-perceived risks through the course of the COVID-19 crisis. At the same time, this could be also explained by the psychometric paradigm derived back in the late 1980s by Slovic that came out of the attempts to explain the discrepancy between how scientists calculated hazards and how the general population perceived these risks. According to the paradigm, even when experts evaluated a low statistical possibility of these risks occurring, novel, uncontrollable, and catastrophic hazards were seen as high risk. Hazards or dangers that were familiar and controlled, on the other hand, were perceived by non-experts as low risk, while having a high statistical chance (Slovic, 1987). Living with the virus for two years could have reformulated the youth’s perception of the virus in a way that it is under control, in turn leading to the decrease in self-risk perception.

Several studies have highlighted the prevalence of negative emotions in regard to COVID-19 and its vaccination that were considered in this paper as one of the reasons for

pandemic fatigue development. Fear, anxiety and anger are mentioned among the negative emotional responses to the epidemic, which were often accompanied by a sense of uncertainty and unfavorable views such as racism and xenophobia (Jungmann & Witthöft, 2020; Lwin et al., 2020). According to the literature, the organized anti-vaccination movements exploiting emotions (e.g., violation of human rights, and doubting vaccine safety) to promote disinformation and conspiracy theories, disseminate uncertainty, and segregate is a key factor to the intensified emotions around the topic of vaccination (Bean, 2011; Broniatowski et al., 2018) and counteracting this disinformation is required to handle the fatigue (Chou & Budenz, 2020).

Concerning the communication strategies, the importance of youth involvement in vaccination advocacy was recognized by Volkemer (2021) who found that even those with 100 followers on social media platforms could impact public opinion, according to the “cascading” effect in which information flows from an individual to their followers, and from the followers to their followers. It has also been acknowledged that online communities of people who share similar values and ideas, where personal information is shared on a daily basis, provide possibilities for emotional sharing and support, and their followers place a high level of trust in them (Zhang & Zhao, 2020). The importance of youth involvement in sharing information has also been recognized by the WHO (2021a) as young people are not only consumers of the information, but also are active producers of it. Thus, they could be engaged in sharing risk-prevention information with their peers on social networks that would be presented in a personalized way.

A number of the findings of this study have been observed by other researchers. A moral responsibility to help others has been demonstrated as an effective tool to overcome pandemic fatigue in medical workers (Lilleholt et al., 2020). At the same time, the separate provision of information of common and personal benefits of vaccination was supported by the findings of a study from the United Kingdom examining the effectiveness of different types of information on COVID-19 vaccination, where they found that information on vaccination personal benefits

were more effective than information on collective benefits in the strongly hesitant participants (Freeman et al., 2021).

According to Dubé & MacDonald (2022), it is also important to support vaccination confidence, which is defined by the WHO (2014) as trust in the efficacy and safety of vaccinations, the system that distributes them, and the incentives of policymakers who determine required vaccines, in those willing to get vaccinated with transparent and open dialog. The need for communication of a clear and definite long-term strategy was formulated by the study participants in course of this study, specifically in regard to the need of revaccination. It is worth mentioning that the need to be revaccinated has been broadly promoted by the government of the Russian Federation and other official institutions. For example, according to information on the official site of the Russian government, revaccination is required every 6 months in case of an increasing trend of COVID-19 incidence, and will be required every year if herd immunity is achieved in the country (defined as around 60-70% of population have an immunity against COVID-19) (publication date is not provided). This statement is supported by the Ministry of Health who had issued the recommendations in this regard (Government of the Russian Federation, n.d.). Nevertheless, there is no information about the revaccination schedule found in the Ministerial document issued in February 2022 (Ministry of Health, 2022).

Provision of factual, clear, transparent, easy-to-read and concise information was denoted by the participants as another potential way to communicate vaccination-related information two years into pandemic. This request is closely connected with the prevalence of negative feelings and emotions associated with the pandemic and vaccination. According to the literature, in unpredictable and uncontrolled situations, informed by the information related to the pandemic, people focus on minimizing unpleasant feelings rather than adjusting behavior to avoid possible hazards (Lerner & Keltner, 2001). Thus, in the media vaccination should be framed as a tangible, practical method for diminishing the COVID-19 risk. In this case negative emotions may be

addressed, self-efficacy can be increased, and sense of control over COVID-19 risk can be highlighted (Witte & Allen, 2000; Chou & Budenz, 2020).

To be able to implement it in practice, it is required to take into consideration that in health crises different players compete for the population's attention. There are two goals formulated by Abraham (2009) that should be strived for in case of sharing crisis information: visibility – the capacity to get the message out to the public clearly and conspicuously without being drowned out by conflicting standpoints – and legitimacy – making sure that information is perceived as legitimate and authoritative. At the same time, according to McCaffery et al. (2020), in urgent circumstances such as the COVID-19 crisis, there is a need to normalize uncertainty and changes in scientific knowledge in line with improving public understanding of a hazard. This scientific literacy and reasoning should be instilled at a fundamental level with the help of formal education as well as science communication (Paakkari & Okan, 2020).

It is crucially important for the population to understand that scientific and practical risk-benefit trade-offs are used to make vaccination choices (Mohd Hanafiah & Wan, 2021). At the same time, the population should be assured that they would be under the protection of the government in case of any vaccination-related side-effects or complications. For example, recognizing that vaccines, like any other treatment, pose some risk to the patient but at the same time have the potential for a tremendous positive impact on public health by creating herd immunity, in the United States the National Vaccine Injury Compensation Program was founded to transfer the financial burden of vaccination-related injuries away from vaccine users and, at the same time, protect vaccine producers from lawsuits that threatened to lower vaccination rates and produce vaccine shortages. This no-fault scheme is intended to appropriately pay vaccine recipients for the costs associated with vaccine-related injuries. The compensation scheme is funded by an excise charge on each dosage of covered vaccination (Malone & Hinman, 2007, Health Resources & Services Administration, 2022).

There are several strengths of the given study. First of all, the timely and yet-to-be-examined issue of pandemic fatigue and its influence on vaccination was explored. Additionally, the study was supported by an established theoretical framework and each of the findings was illustrated with the participants' quotes. Two members of the advising team were involved in the process of making interpretation decisions, which ensured investigator triangulation and, therefore, enhanced the credibility of the study. A researcher diary was filled after each interview and during data analysis, where the study investigator wrote emotions, feelings and thoughts that helped to reflect the researcher's position in the study and address any potential bias of the investigator, therefore, making conclusions as objective as possible.

At the same time, there were some limitations to the study as well. First, there was a lack of investigator triangulation during the coding and analysis stages which could have made the results of the research more objective and credible. Another limitation of the study was the lack of member-check which was not done due to time constraints, and which could have enhanced the trustworthiness of the study results. It is also important to mention that in the study the perspectives of a narrow group (people aged 18-24 living in Moscow) were explored which also narrowed down the potential richness of the findings. For instance, none of the participants had children or were pregnant, which could have changed their perceptions and vaccination-related decisions. In future studies, the perspectives of broader population groups should be considered and explored. Quantitative or mixed-method studies examining the effectiveness of the recommendations provided by this paper would further enforce and enhance the findings as well. It would also be beneficial to consider the population's perceptions of other safety measures, such as mask-wearing or distancing, two years into the pandemic.

The findings of the present study reconfirmed the importance of listening to and engaging with the target group which could help to understand them better and adjust vaccination promotion campaigns accordingly. Because they are active social members and communicators, share values of social and civil responsibility, and care for their relatives, youth is a great source for action in

vaccination and communicating vaccination importance, especially in circumstances of pandemic fatigue. Thus, young people should be listened to and involved in the action to support government-led initiatives. The results of the study could be used to inform policies on vaccination promotion among youth residing in Moscow.

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FIGURES

Figure 1: COM-B Model (adapted from WHO, 2019)

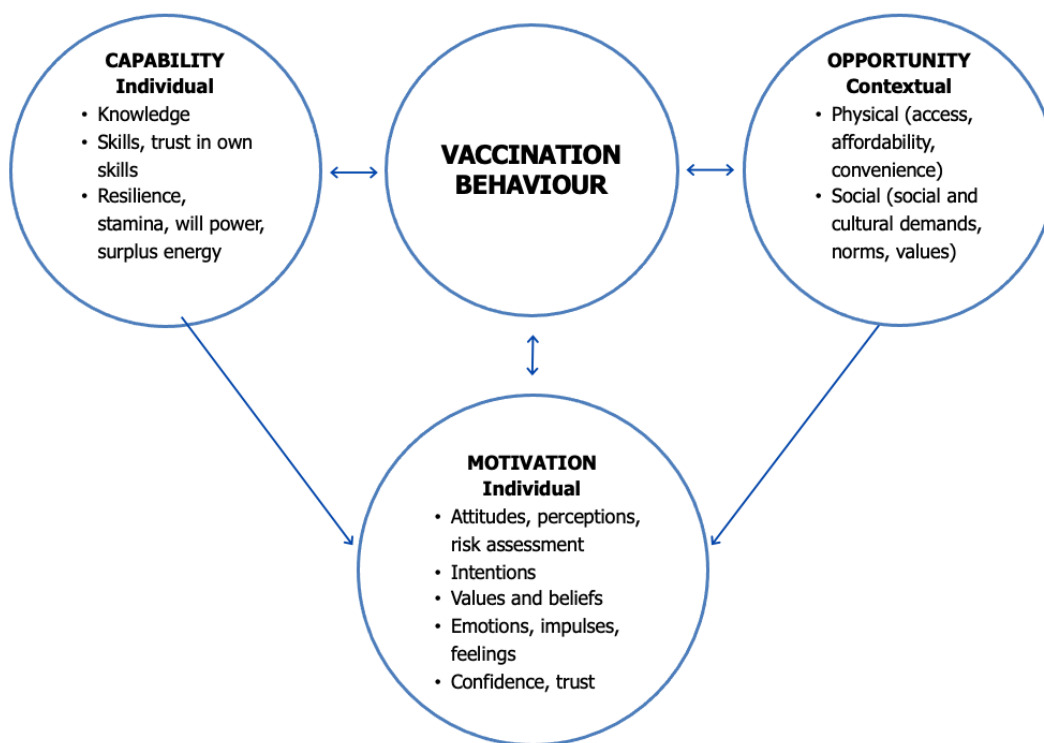
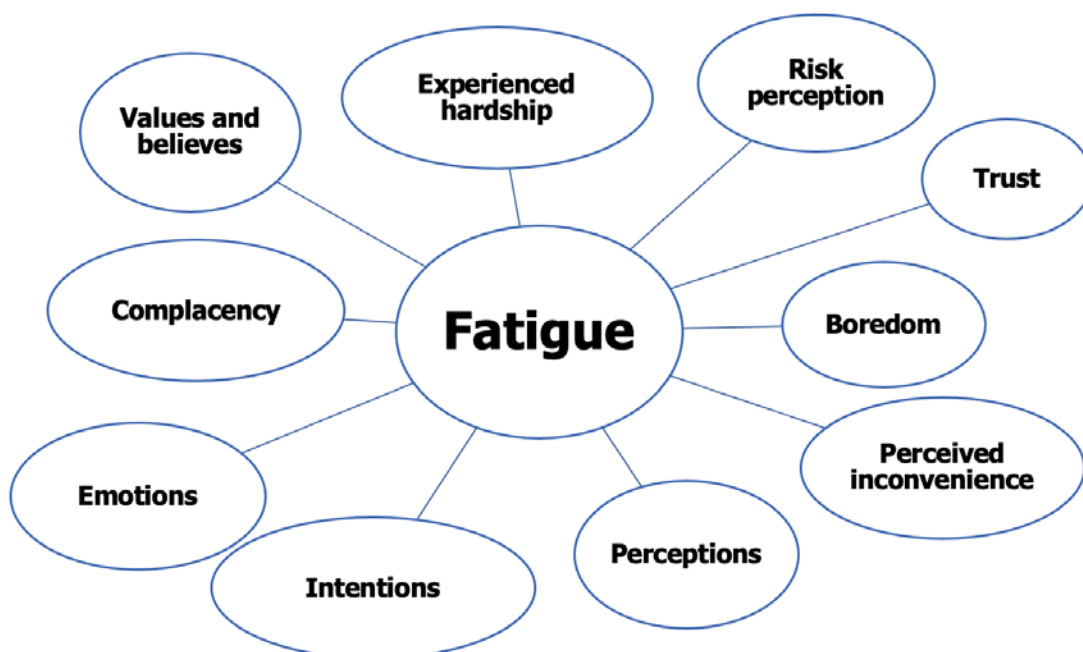


Figure 2: Influence of the pandemic fatigue on a motivation component of COM-B Model (adapted from WHO, 2020)



APPENDIX 1

Interview guide for vaccinated participants

Let me start with the question of whether you are vaccinated or not? If not, what is your attitude to vaccination? (Prompts: Are you in doubt or strictly against vaccination?) If yes, tell me, when did you get vaccinated for the first time?

Thanks.

General questions (perspectives, knowledge and attitudes towards COVID-19 vaccination).

1. Please tell me what is a vaccine? What do you think is the mechanism of the vaccine? Tell me, are you familiar with the concept of herd immunity? Describe it. How do you feel about it? (Prompts: should people without contraindications for vaccination be vaccinated to protect those who cannot be vaccinated?)

2. Why do you think people are vaccinated against COVID-19 and why did you get vaccinated (Prompts: Returning to everyday life, achieving collective immunity; getting a QR code)? Are you going to be vaccinated again according to the vaccination schedule?

3. Tell me, how did people around you react to your decision regarding vaccination? Have you met with support or condemnation? What was your reaction to the opinions of others?

4. One of the advantages of vaccination is a reduced risk of infection and mortality from COVID-19. How do you feel about this statement? Do you think there are other effective ways to prevent the disease and reduce risks that could be compared with vaccination?

5. Why do you think people doubt or refuse to vaccinate against COVID-19? (Prompts: information, misinformation, attitude towards the vaccine, fear of side effects, distrust of the medical system/medical professionals, fear of the transfer of personal data collected at vaccine distribution points, health authorities and government officials). What is the most common

reason for refusing vaccination among your friends and family? What explains this distrust/fear? Have you tried to promote vaccination, what guided you?

6. What do you think about Russian vaccines? What contraindications and side effects could you name?

7. Tell me, when the vaccine became widely available in Moscow, how did you react and what actions did you take? What caused your reaction? (Prompts: Did you expect actions from your environment?).

Perception of the information about COVID-19 vaccination.

Now I would like to speak with you regarding the persuading of information on COVID-19 vaccination.

8. What emotions do you feel in relation to information about vaccination against COVID-19 (Prompts: fear, sadness, shame, inspiration)? Which of the information on this topic is of most interest to you (Prompts: what message formats, focus)?

9. How could you determine the amount of information about COVID-19 and vaccination? How can the amount of information about COVID-19 and vaccination influence the decision to get vaccinated? What information about vaccination against COVID-19, new vaccines would you like to know first of all?

10. Among all many sources, tell me, which sources of information you use the most and which ones are the most reliable for you for obtaining information regarding COVID-19 vaccination information? What determines your trust in these sources?

11. How do you feel about information published by official institutions (Ministry of Health of the Russian Federation, Rospotrebnadzor, Government of the Russian Federation) (Prompts: consistency, openness/transparency, accessibility (clarity)? What about independent organizations, for example, the World Health Organization?

12. What are unreliable sources for you, the information from which you doubt? In this connection, do you define them as unreliable?

13. What information about vaccination do you most often share or have shared with your loved ones? Have you published any information on social networks on the issue of vaccination, what kind was it? If yes, what motivated you to publish it?

14. Do you check the reliability of data and facts, how?

15. How do you think the information bubble generated by social networks can influence attention to vaccination issues?

16. Have you adopted an active information seeking strategy regarding COVID-19 vaccination? What were you looking for (Prompt: what information in official sources was not enough for you)? What information did you rely on, from what sources?

Potential for improvement of COVID-19 vaccination information dissemination.

Now I would like to talk with you about opportunities to improve the mechanisms for disseminating reliable information about vaccination against COVID-19 in the context of the ongoing pandemic.

17. In the face of an intense flow of information, how could the attention of the young population of Moscow to the most important information about vaccination against COVID-19 be increased? How can the information bubble be overcome?

18. What, in your opinion, of the actions on the part of officials in the future within the framework of this pandemic or in the case of other existing diseases, could help to increase confidence of young people in the vaccine as a means of preserving health and life? (Prompts: direct question-and-answer conferences with officials, doctors). Who would you listen to?

19. Given the safety and effectiveness of the vaccine, what information about the COVID-19 vaccination would you share on social media? What do you think should be included in these messages (Prompts: statistics, information about risks and benefits, description of personal history, link to source)? What emotion should they convey? In what format should it be presented (Prompts: picture, infographic, video)?

20. What other means can be used to effectively disseminate information about COVID-19 vaccination to reach people of your age (Prompts: posters, social media posts, subway audio posts)?

21. Would you like to add anything else about vaccination against COVID-19 that we haven't talked to you about yet?

Thanks. This is the end of our interview. If I may, I would like to clarify some more demographic information that will be useful in the process of data analysis. Can I ask you a few short questions?

How old are you?

What kind of education do you have (direction and level of education)?

What is your marital status?

Do you have any children?

Thank you for participating in the interview!

APPENDIX 2

Interview guide for unvaccinated participants

Let me start with the question of whether you are vaccinated or not? If not, what is your attitude to vaccination? (Prompts: Are you in doubt or strictly against vaccination?)

Thanks.

General questions (perspectives, knowledge and attitudes towards COVID-19 vaccination).

1. Please tell me what is a vaccine? What do you think is the mechanism of the vaccine? Tell me, are you familiar with the concept of herd immunity? Describe it. How do you feel about it? (Prompts: should people without contraindications for vaccination be vaccinated to protect those who cannot be vaccinated?)

2. How do you assess your risk of contracting COVID-19? What do you think are the consequences for your health if you become infected with COVID-19? (Prompts: are there any complications?) What are the consequences of being infected with COVID-19 on your life as a whole? What about the consequences of vaccination?

3. Why do you think people doubt or refuse to vaccinate against COVID-19? (Prompts: information, misinformation, attitude towards the vaccine, fear of side effects, distrust of the medical system/medical professionals, fear of the transfer of personal data collected at vaccine distribution points, health authorities and government officials). What is the reason for your refusal /doubt about the need for vaccination? (Prompts: What risks do you see in vaccination?)

4. Tell me, how did people around you react to your decision regarding vaccination? Have you met with support or condemnation? What was your reaction to the opinions of others?

5. Why do you think people are vaccinated against COVID-19? (Prompts: Returning to everyday life, achieving collective immunity; getting a QR code) What are the benefits of vaccination?

6. One of the advantages of vaccination is a reduced risk of infection and mortality from COVID-19. How do you feel about this statement? Do you think there are other effective ways to prevent the disease and reduce risks that could be compared with vaccination?

7. Tell me what you think about the proposed vaccines in Russia? What contraindications and side effects could you name? What do your family and friends say about vaccines? (Prompts: Have you or your friends had adverse reactions to the vaccine that made you change your decision about vaccination?)

8. What would change your decision to get vaccinated against COVID-19?

Now I would like to talk with you about the perception of information about vaccination against COVID-19.

9. What emotions do you feel in relation to information about vaccination against COVID-19 (Prompts: fear, sadness, shame, inspiration)? Which of the information on this topic is of most interest to you (Prompts: what message formats, focus, focus)?

10. How could you determine the amount of information about COVID-19 and vaccination? How can the amount of information about COVID-19 and vaccination influence the decision to get vaccinated? What information about vaccination against COVID-19, new vaccines would you like to know first of all?

11. Out of all the many sources, tell me which sources of information do you use the most? Which ones are the most reliable for you? What determines your trust in these sources? How do you feel about information published by official institutions (Ministry of Health of the Russian Federation, Rospotrebnadzor, Government of the Russian Federation) (Prompts: consistency, openness/transparency, accessibility (clarity)? What about independent organizations, for example, the World Health Organization?

12. What are unreliable sources for you, the information from which you doubt? In this connection, do you define them as unreliable?

13. What information about vaccination do you most often share with your loved ones?

Do you check the reliability of data and facts, how? Have you published any information on social networks on the issue of vaccination, what kind was it? If yes, what motivated you to publish it?

14. How do you think the information bubble generated by social networks can influence attention to vaccination issues?

15. Have you adopted an active information seeking strategy regarding COVID-19 vaccination? What were you looking for (Prompt: what information in official sources was not enough for you)? What information did you rely on, from what sources?

Potential for improvement of COVID-19 vaccination information dissemination.

Now I would like to talk with you about opportunities to improve the mechanisms for disseminating reliable information about vaccination against COVID-19 in the context of the ongoing pandemic.

16. In the face of an intense flow of information, how could the attention of the young population of Moscow to the most important information about vaccination against COVID-19 be increased? How can the information bubble be overcome?

17. What, in your opinion, of the actions on the part of officials in the future within the framework of this pandemic or in the case of other existing diseases, could help to increase confidence of young people in the vaccine as a means of preserving health and life? (Prompts: direct question-and-answer conferences with officials, doctors). Who would you listen to?

18. Given the safety and effectiveness of the vaccine, what information about the COVID-19 vaccination would you share on social media? What do you think should be included in these messages (Prompts: statistics, information about risks and benefits, description of personal history, link to source)? What emotion should they convey? In what format should it be presented? (Prompts: picture, infographic, video)

19. What other means can be used to effectively disseminate information about COVID-19 vaccination to reach people of your age (Prompts: posters, social media posts, subway audio posts)?

20. Would you like to add anything else about vaccination against COVID-19 that we haven't talked to you about yet?

Thanks. This is the end of our interview. If I may, I would like to clarify some more demographic information that will be useful in the process of data analysis. Can I ask you a few short questions?

How old are you?

What kind of education do you have (direction and level of education)?

What is your marital status?

Do you have any children?

Thank you for participating in the interview!

APPENDIX 3

Вопросник для вакцинированных участников

Позвольте начать с вопроса о том, вакцинированы Вы или нет? Если нет, то какое у вас отношение к вакцинации? (*Prompts: Вы сомневаетесь или строго против вакцинации?*) Если да, скажите, когда Вы привились впервые?

Спасибо.

Вопросы общего характера (знания, отношения и взгляды на вакцинацию от COVID-19).

1. Скажите, пожалуйста, что такое вакцина? Как Вы думаете, что собой представляет механизм работы вакцины? Скажите, знакома ли Вам концепция коллективного иммунитета? Опишите ее. Как Вы к ней относитесь? (*Prompts: должны ли люди без противопоказаний для прививки пройти вакцинацию, чтобы защитить тех, кто не может быть вакцинирован?*)

2. Почему, по Вашему мнению, люди прививаются от COVID-19 и почему привились именно Вы (*Prompts: Возвращение к обыденной жизни, достижение коллективного иммунитета; получение QR-кода*)? Собираетесь ли Вы прививаться повторно согласно расписанию вакцинации?

3. Скажите, как Ваше окружение отнеслось к Вашему решению в отношении вакцинации? Встречались ли Вы с поддержкой или осуждением? Какова была Ваше реакция на мнение окружающих?

4. Одно из преимуществ вакцинации – сниженный риск заражения и смертности от COVID-19. Как Вы относитесь к данному утверждению? Как Вы считаете, есть ли другие эффективные способы предотвращения заболевания и снижения рисков, которые могли бы сравниться с вакцинацией?

5. Почему, по Вашему мнению, люди сомневаются или отказываются от вакцинации от COVID-19? (*Prompts: информация, дезинформация, отношение к вакцине,*

страх перед побочными эффектами, недоверие к медицинской системе/медицинским работникам, страх перед передачей личных данных, собранных в пунктах распространения вакцины, органам здравоохранения и государственным чиновникам). **Какая самая частая причина для отказа от вакцинации среди Ваших знакомых и близких? Чем объясняется данное недоверие/страх? Пробовали ли Вы продвигать вакцинацию, что Вами руководило?**

6. Скажите, что Вы думаете о российских вакцинах? Какие противопоказания и побочные эффекты Вы могли бы назвать?

7. Скажите, когда вакцина появилась в широкой доступности в Москве, как Вы среагировали и какие действия предприняли? Что стало причиной Вашей реакции?

(Prompts: Ожидали ли вы действий со стороны Вашего окружения?).

Восприятие информации о вакцинации от COVID-19

Сейчас я хотела бы поговорить с Вами о восприятии информации о вакцинации от COVID-19.

8. Скажите, какие эмоции Вы испытываете по отношению к информации о вакцинации от COVID-19 (Prompts: страх, грусть, стыд, воодушевление)? Что из информации на эту тему вызывает у Вас наибольший интерес (Prompts: какие форматы сообщений, направленность, фокус)?

9. Как Вы могли бы определить количество информации о COVID-19 и вакцинации? Каким образом количество информации о COVID-19 и вакцинации может оказывать влияние на решение вакцинироваться? Какую информацию о вакцинации от COVID-19, новых вакцинах Вы хотели бы узнать в первую очередь?

10. Из всего множества источников, скажите, какие источники информации Вы используете больше всего? Какие источники являются наиболее достоверными, по Вашему мнению, в отношении получения информации о вакцинации против COVID-19? Чем определяется Ваше доверие к данным источникам?

11. Как Вы относитесь к информации, публикуемой официальными учреждениями (Министерством здравоохранения Российской Федерации, Роспотребнадзором, Правительством Российской Федерации) (*Prompts: последовательность, открытость/транспарентность, доступность (понятность/ясность/четкость)*)? А независимыми организациями, например, Всемирной организацией здравоохранения?

12. Что для Вас является недостоверными источниками, в информации из которых Вы сомневаетесь? В связи с чем Вы определяете их как недостоверные?

13. Какой информацией о вакцинации Вы чаще всего делитесь или делились с близкими? Публиковали ли Вы какую-либо информацию в социальных сетях по вопросу вакцинации, какого рода она была? Если да, что Вас мотивировало ее опубликовать?

14. Проверяли ли Вы достоверность данных и фактов, каким образом?

15. Как Вы думаете, каким образом информационный пузырь, формируемый социальными сетями, может оказывать влияние на внимание к вопросам вакцинации?

16. Применяли ли Вы стратегию активного поиска информации в отношении вакцинации от COVID-19? Что Вы искали (*Prompt: какой информации в официальных источниках Вам было недостаточно*)? На какую информацию Вы ориентировались, из каких источников?

Потенциал улучшения распространения информации о вакцинации против COVID-19.

Сейчас я бы хотела поговорить с Вами о возможностях по улучшению механизмов распространения достоверной информации о вакцинации от COVID-19 в условиях продолжающейся пандемии.

17. В условиях интенсивного потока информации, как можно было бы повысить внимание молодого населения Москвы к наиболее важной информации о вакцинации от COVID-19? Каким образом может быть преодолен информационный пузырь?

18. Что, по Вашему мнению, из действий со стороны официальных лиц в дальнейшем в рамках данной пандемии или в случае других существующих заболеваний, могло бы помочь повысить доверие молодежи к вакцине как к средству сохранения здоровья и жизни? (Prompts: прямые конференции «вопрос-ответ» с официальными лицами, врачами). К кому бы Вы прислушались?

19. При условии безопасности и эффективности вакцины, какой информацией о вакцинации от COVID-19 Вы бы поделились в социальных сетях? Что, по-Вашему, должно входить в данные сообщения (Prompts: статистика, информация о рисках и пользе, описание личной истории, ссылка на источник)? Какую эмоцию они должны транслировать? В каком формате должна быть представлена? (Prompts: картинка, инфографика, видео)

20. Какие еще средства могут быть использованы для эффективного распространения информации о вакцинации от COVID-19 среди лиц Вашего возраста (Prompts: плакаты, сообщения в соц. сетях, аудио сообщения в метро)?

21. Хотели бы Вы добавить что-либо еще касательно вакцинации от COVID-19, о чем мы с Вами еще не поговорили?

Спасибо. Это конец нашего интервью. Если Вы позволите, я хотела бы уточнить еще некоторую демографическую информацию, которая будет полезна в процессе анализа данных. Я могу Вам задать несколько коротких вопросов?

Сколько Вам полных лет?

Какое образование Вы имеете (направление и уровень образования)?

Какое Ваше семейное положение?

Есть ли у Вас дети?

Благодарю Вас за участие в интервью!

APPENDIX 4

Вопросник для невакцинированных участников

Позвольте начать с вопроса о том, вакцинированы Вы или нет? Если нет, то какое у вас отношение к вакцинации? (*Prompts: Вы сомневаетесь или строго против вакцинации?*)

Спасибо.

Вопросы общего характера (знания, отношения и взгляды на вакцинацию от COVID-19).

1. Скажите, пожалуйста, что такое вакцина? Как Вы думаете, что собой представляет механизм работы вакцины? Скажите, знакома ли Вам концепция коллективного иммунитета? Опишите ее. Как Вы к ней относитесь? (*Prompts: должны ли люди без противопоказаний для прививки пройти вакцинацию, чтобы защитить тех, кто не может быть вакцинирован?*)

2. Как Вы оцениваете свой риск заражения COVID-19? Какие последствия для Вашего здоровья, как Вы думаете, могут быть в случае заражения COVID-19? (*Prompts: возможны ли осложнения?*) Какие влияние на Вашу жизнь в целом может оказать заражение COVID-19? А какие последствия могут быть от вакцинации?

3. Почему, по Вашему мнению, люди сомневаются или отказываются от вакцинации от COVID-19? (*Prompts: информация, дезинформация, отношение к вакцине, страх перед побочными эффектами, недоверие к медицинской системе/медицинским работникам, страх перед передачей личных данных, собранных в пунктах распространения вакцины, органам здравоохранения и государственным чиновникам*). Что является причиной Вашего отказа от/сомнения в необходимости вакцинации? (*Prompts: какие риски Вы видите в вакцинации?*)

4. Скажите, как Ваше окружение отнеслось к Вашему решению в отношении вакцинации? Встречались ли Вы с поддержкой или осуждением? Какова была Ваше реакция на мнение окружающих?

5. Почему, по Вашему мнению, люди прививаются от COVID-19? (Prompts: Возращение к обыденной жизни, достижение коллективного иммунитета, получение QR-кода) Какие преимущества дает вакцинация?

6. Одно из преимуществ вакцинации – сниженный риск заражения и смертности от COVID-19. Как Вы относитесь к данному утверждению? Как Вы считаете, есть ли другие эффективные способы предотвращения заболевания и снижения рисков, которые могли бы сравниться с вакцинацией?

7. Расскажите, что Вы думаете о предлагаемых вакцинах в России? Какие противопоказания и побочные эффекты Вы могли бы назвать? Что говорят Ваша семья, близкие и знакомые о вакцинах? (Prompts: Бывали ли у Вас или у Ваших знакомых побочные реакции на вакцину, что заставило Вас изменить Ваше решение о вакцинации?)

8. Скажите, что могло бы изменить Ваше решение о вакцинации от COVID-19? Сейчас я хотела бы поговорить с Вами о восприятии информации о вакцинации от COVID-19.

9. Скажите, какие эмоции Вы испытываете по отношению к информации о вакцинации от COVID-19 (Prompts: страх, грусть, стыд, воодушевление)? Что из информации на эту тему вызывает у Вас наибольший интерес (Prompts: какие форматы сообщений, направленность, фокус)?

10. Как Вы могли бы определить количество информации о COVID-19 и вакцинации? Каким образом количество информации о COVID-19 и вакцинации может оказывать влияние на решение вакцинироваться? Какую информацию о вакцинации от COVID-19, новых вакцинах Вы хотели бы узнать в первую очередь?

11. Из всего множества источников, скажите, какие источники информации Вы используете чаще всего? Какие источники являются наиболее достоверными для Вас? Чем определяется Ваше доверие к данным источникам? Как Вы относитесь к информации, публикуемой официальными учреждениями (Министерством здравоохранения Российской Федерации, Роспотребнадзором, Правительством Российской Федерации) (*Prompts: последовательность, открытость/транспарентность, доступность (понятность/ясность/четкость)*)? А независимыми организациями, например, Всемирной организацией здравоохранения?

12. Что для Вас является недостоверными источниками, в информации из которых Вы сомневаетесь? В связи с чем Вы определяете их как недостоверные?

13. Какой информацией о вакцинации Вы чаще всего делитесь или делились с близкими? Проверяли ли Вы достоверность данных и фактов, которые публиковали? Публиковали ли Вы какую-либо информацию в социальных сетях по вопросу вакцинации, какого рода она была? Если да, что Вас мотивировало ее опубликовать?

14. Как Вы думаете, каким образом информационный пузырь, формируемый социальными сетями, может оказывать влияние на внимание к вопросам вакцинации?

15. Применяли ли Вы стратегию активного поиска информации в отношении вакцинации от COVID-19? Что Вы искали (*Prompt: какой информации в официальных источниках Вам было недостаточно*)? На какую информацию Вы ориентировались, из каких источников?

Сейчас я бы хотела поговорить с Вами о возможностях по улучшению механизмов распространения достоверной информации о вакцинации от COVID-19 в условиях продолжающейся пандемии.

16. В условиях интенсивного потока информации, как можно было бы повысить внимание молодого населения Москвы к наиболее важной информации о вакцинации от COVID-19? Каким образом может быть преодолен информационный пузырь?

17. Что, по Вашему мнению, из действий со стороны официальных лиц в дальнейшем в рамках данной пандемии или в случае других существующих заболеваний, могло бы помочь повысить доверие молодежи к вакцине как к средству сохранения здоровья и жизни? (Зондирующие вопросы (Prompts): прямые конференции «вопрос-ответ» с официальными лицами, врачами). К кому бы Вы прислушались?

18. При условии безопасности и эффективности вакцины, какой информацией о вакцинации от COVID-19 Вы бы поделились в социальных сетях? Что, по-Вашему, должно входить в данные сообщения (Prompts: статистика, информация о рисках и пользе, описание личной истории, ссылка на источник)? Какую эмоцию они должны транслировать? В каком формате должна быть представлена? (Prompts: картинка, инфографика, видео)

19. Какие еще средства могут быть использованы для эффективного распространения информации о вакцинации от COVID-19 среди лиц Вашего возраста (Prompts: плакаты, сообщения в соц. сетях, аудио сообщения в метро)?

20. Хотели бы Вы добавить что-либо еще касательно вакцинации от COVID-19, о чем мы с Вами еще не поговорили?

Спасибо. Это конец нашего интервью. Если вы позволите, я хотела бы уточнить еще некоторую демографическую информацию, которая будет полезна в процессе анализа данных. Я могу Вам задать несколько коротких вопросов?

Сколько Вам полных лет?

Какое образование Вы имеете (направление и уровень образования)?

Какое Ваше семейное положение?

Есть ли у Вас дети?

Благодарю Вас за участие в интервью!

APPENDIX 5

Consent Form for Participants (English)

American University of Armenia

Turpanjian College of Health Sciences

Institutional Review Board #1

Consent Form for Participants

Title: Perspectives, Knowledge, and Attitudes of Young Adult Moscow

Residents towards COVID-19 Vaccination: A Qualitative Study to Inform Vaccine

Information Dissemination in Circumstances of Pandemic Tiredness

Research team/Advisors: Daria Makarova (MPH Candidate), Anya Agopian (First Advisor), Varduhi Hayrumyan (Second Advisor)

Hello, my name is Daria Makarova. I am a Master of Public Health student at the Turpanjian College of Health Sciences at the American University of Armenia (AUA). For my thesis project I am conducting a qualitative study to explore the young adult Moscow residents' knowledge, attitudes, and perspectives towards COVID-19 vaccination and identify the gaps in COVID-19 vaccination information dissemination from the perspective of this group of residents. The study results will be helpful for creating a dialog between the policymakers and the young population in framework of work on COVID-19 vaccination.

The study is being conducted among Moscow residents of 18-24 years old who live in Moscow since 2020 or earlier and have no contraindications to COVID-19 vaccination. I am inviting you and about 20 other adult Moscow residents to participate in this study as you are a representative of this population. Your participation and opinion are very important for the study. This is a one-time interview. There are no plans for further follow-up studies.

The interview will take from 30 minutes up to one hour. During the interview, I will ask you questions related to the knowledge about and attitudes toward COVID-19 vaccination, perception of the information about the COVID-19 vaccination, and your ideas for improving the

communication strategy on this issue. Your participation in this study is voluntary. There are no consequences if you refuse to participate. You may refuse to answer any of the questions or can stop the interview at any time. There is no financial compensation or other personal benefits from participating in the study and there are no known risks to you resulting from your participation in the study. The information provided by you will result in a better understanding of the issues addressed in the study and might also help in making better decisions in the future.

All the information provided by you will stay confidential and will be used only for research purposes. Only the study team will have access to the provided information and only the summary of the data from all interviews will be presented in the final report. Any identifiable information will be destroyed upon completion of the study. If you are not against it, I will record the conversation. This is done solely to ensure that we do not miss any of the important information provided by our participants.

If you have any questions regarding this study, you can contact the research team member Varduhi Hayrumyan, +374 60 612561, e-mail: vhayrumyan@aua.am. If you feel you have not been treated fairly or think you have been hurt by joining the study you should contact Dr. Varduhi Petrosyan, the Dean of the Turpanjian College of Health Sciences and an alternative member of the Institutional Review Board #1 of the American University of Armenia +374 60 612592, e-mail: vpetrosi@aua.am.

Do you agree to participate in this interview?

Can I record the interview?

Thank you.

APPENDIX 6

Consent Form for Participants (Russian)

Американский университет Армении

Факультет здравоохранительных наук имени Турпанджяна

Совет по институциональному обзору №1

Форма согласия для участников

Название: Взгляды, знания и отношение молодых совершеннолетних жителей Москвы к вакцинации от COVID-19: качественное исследование распространения информации в условиях усталости от пандемии

Исследовательская группа/Советники: Дарья Макарова (Кандидат на Магистра общественного здравоохранения), Аня Агопян (Первый советник), Вардуи Айрумян (Второй советник)

Здравствуйтесь, меня зовут Дарья Макарова. Я являюсь студенткой магистратуры общественного здравоохранения Факультета здравоохранительных наук имени Турпанджяна при Американском университете Армении (AUA). В рамках моего дипломного проекта я провожу качественное исследование с целью изучения взглядов, знаний и отношения молодых совершеннолетних жителей Москвы к вакцинации от COVID-19 и выявления пробелов в распространении информации о вакцинации от COVID-19 с точки зрения этой группы населения. Результаты исследования будут полезны для налаживания диалога между директивными органами и молодым населением в рамках работы по вопросам вакцинации от COVID-19.

Исследование проводится среди молодых жителей Москвы в возрасте 18-24 лет, которые проживают в Москве с 2020 года и ранее, не имеют противопоказаний к вакцинации против COVID-19. Я приглашаю вас и порядка 20 других жителей Москвы, принять участие в данном исследовании, поскольку Вы являетесь представителем данной группы населения.

Ваше участие и мнение очень важны для исследования. Это одноразовое интервью.

Последующее исследование не планируются.

Собеседование займет от 30 минут до одного часа. Во время интервью я задам Вам вопросы, связанные с знаниями и отношением к вакцинации против COVID-19, восприятием информации о вакцинации против COVID-19, а также спрошу Ваши идеи по улучшению механизмов распространения информации по этому вопросу. Ваше участие в этом исследовании является добровольным. Если Вы откажетесь участвовать, никаких последствий не будет. Вы можете отказаться отвечать на любой из вопросов или прекратить собеседование в любое время. Участие в исследовании не предполагает никакой финансовой компенсации или других личных выгод. Нет никаких известных рисков для Вас, связанных с Вашим участием в исследовании. Предоставленная Вами информация поможет лучше понять вопросы, затронутые в исследовании, а также может помочь в принятии более эффективных решений в будущем.

Вся предоставленная Вами информация останется конфиденциальной и будет использоваться только в исследовательских целях. Только исследовательская группа будет иметь доступ к предоставленной информации, и в окончательном отчете будет представлено только краткое изложение данных всех интервью. Любая идентифицируемая информация будет уничтожена по завершении исследования. Если Вы не возражаете, я включу запись нашего разговора. Это необходимо только для того, чтобы удостовериться, что мы не упустим никакой важной информации, предоставляемой нашими участниками.

Если у Вас есть какие-либо вопросы относительно этого исследования, Вы можете связаться членом исследовательской команды Вардуи Айрумян, +374 60 612561, e-mail: vhauryumyan@aia.am. Если вы чувствуете, что с вами обошлись несправедливо или считаете, что вам причинили вред во время исследования, Вам следует связаться с д-ром Вардуи Петросян, деканом Факультета здравоохранительных наук имени Турпанджяна и

альтернативным членом Совета по институциональному обзору №1, +374 60 612592, e-mail:
vpetrosi@aua.am.

Согласны ли вы участвовать в этом интервью?

Могу ли я записать нашу беседу?

Спасибо.

LIST OF APPROPRIATE JOURNALS

Qualitative research

Journal of Health and Social Behavior (JHSB)

Vaccine