UDC 614.47+615.38/.39+578.834.1+616-036.21-039.71
DOI: 10.56871/MHCO.2023.23.78.003

VACCINATION AGAINST COVID-19 THROUGH THE EYES OF MEDICAL WORKERS — CURRENT VIEW OF THE PROBLEM PREVENTIVE MEDICINE

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For citation: Asatryan AG, Levchenko IL, Ermolenko KD, Nikitina AE, Mikirtichan GL, Kubar OI. Vaccination against COVID-19 through the eyes of medical workers — current view of the problem preventive medicine. Medicine and health care organization (St. Petersburg). 2023;8(4):24-41. DOI: https://doi.org/10.56871/MHCO.2023.23.78.003

Received: 23.08.2023 **Revised: 26.09.2023** **Accepted: 15.12.2023**

ABSTRACT. The period of creation of vaccines against COVID-19 and their implementation was distinguished not only by lack of scientific knowledge in the field of epidemiology of the infection, the nature of immunological protection, data on effectiveness/safety, practical basis for vaccines use, etc., but also by the competitive regime of vaccine development, accompanied by both real facts of compromise solutions, and unregulated discrediting of competitors' vaccines and huge negative information impact by creating a stereotype of mistrust and skepticism. ALL this caused public disorientation regarding vaccines/vaccination and did not promote true adherence to it. In this work, attention is drawn to the most socially vulnerable professional group of medical workers directly involved in mass vaccination, in order to study the opinions of doctors of different specialties on the issues of vaccine prevention in the context of vaccination against COVID-19. The methodical implementation of the goal was provided by the development of a special questionnaire, conducting an express survey of respondents and the use of adequate statistical methods for assessing the received materials. The analysis of the study results revealed differences in the motivation of doctors for their own vaccination (voluntarily or by order), depending on their status and professional experience, due to a significant difference in assessing the quality of vaccines (availability, safety and immunogenicity), based on the fact of the dominant use of domestic vaccines the common Sputnik V platform, as well as the limit of objective data for dynamic monitoring of all classes of vaccines. Consideration of the range of fluctuations in the opinions of doctors on a number of issues related to the vaccination procedure itself, informing patients, satisfying their rights to make choice, autonomy and confidentiality, revealed the need to improve the training system and introduce a feedback mechanism. The reasoned position of doctors on the goals of mass vaccination and the reasons for patients' refusal to vaccinate is concerned. In terms of commitment to mandatory or voluntary vaccination to ensure the formation of an adequate level of collective immunity against COVID-19, the attitude of doctors spread out approximately equally. In general, the article submitted for publication is a real source for drawing up an algorithm for effective measures of motivational and professional training of specialists for conducting vaccine prevention in routine and emergency epidemiological conditions.

KEY WORDS: vaccine prevention; vaccines against COVID-19; adherence to vaccination; doctors' opinions on routine vaccination and vaccination against COVID-19.

ВАКЦИНАЦИЯ ОТ COVID-19 ГЛАЗАМИ МЕДИЦИНСКИХ РАБОТНИКОВ — АКТУАЛЬНЫЙ ВЗГЛЯД НА ПРОБЛЕМУ ПРОФИЛАКТИЧЕСКОЙ МЕДИЦИНЫ

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Для цитирования: Асатрян А.Г., Левченко И.Л., Ермоленко К.Д., Никитина А.Е., Микиртичан Г.Л., Кубарь О.И. Вакцинация от COVID-19 глазами медицинских работников — актуальный взгляд на проблему профилактической медицины // Медицина и организация здравоохранения. 2023. Т. 8. № 4. С. 24–41. DOI: https://doi.org/10.56871/MHCO.2023.23.78.003

Поступила: 23.08.2023 **Одобрена: 26.09.2023** **Принята к печати: 15.12.2023**

РЕЗЮМЕ. Период создания вакцин против COVID-19 и этап их применения отличался не только дефицитом научных знаний в области эпидемиологии инфекции, характера иммунологической защиты, данных по эффективности/безопасности, практической базе их применения и другим, но и соревновательным режимом разработки вакцин, сопровождающимся как реальными фактами компромиссных решений, так и нерегулируемой дискредитацией вакцин конкурентов и огромным отрицательным информационным воздействием путем создания стереотипа недоверия и скептицизма. Это вызвало дезориентацию общества в отношении вакцин/вакцинации, не способствовало истинной приверженности к ней. В настоящей работе внимание обращено к наиболее социально уязвимой профессиональной группе медицинских работников, непосредственно участвующих в массовой вакцинации, с целью изучения мнения врачей разных специальностей по вопросам вакцинопрофилактики в условиях вакцинации против COVID-19. Методическое осуществление цели было обеспечено разработкой специальной анкеты, проведением экспресс-опроса респондентов и применением адекватных статистических методов оценки полученных материалов. В ходе анализа результатов исследования выявлены различия в мотивации к собственной вакцинации врачей (добровольно или по приказу), в зависимости от статуса и профессионального опыта, обусловленные достоверным различием в оценке качества вакцин (доступность, безопасность и иммуногенность), базирующимся на факте доминанты применения отечественных вакцин общей платформы Спутник V, а также лимитом объективных данных динамического наблюдения за всеми классами вакцин. Рассмотрение диапазона колебаний мнения врачей по сумме вопросов, касающихся непосредственно процедуры вакцинации, информирования пациентов, удовлетворения их прав на выбор, автономию и конфиденциальность, выявило необходимость совершенствования системы подготовки медицинских работников и введения механизма обратной связи. Продемонстрирована аргументированная позиция врачей по вопросам целей массовой вакцинации и причин отказа пациентов от вакцинации. В плане приверженности обязательной или добровольной вакцинации для гарантии формирования адекватного уровня коллективного иммунитета против COVID-19 отношение врачей разделилось примерно поровну. В целом представленная к публикации статья является реальным источником составления

алгоритма действенных мер мотивационной и профессиональной подготовки специалистов для проведения вакцинопрофилактики в обычных и чрезвычайных эпидемиологических условиях.

КЛЮЧЕВЫЕ СЛОВА: вакцинопрофилактика; вакцины против COVID-19; приверженность к вакцинации; мнение врачей о рутинной вакцинации и вакцинации против COVID-19.

INTRODUCTION

On 11 May 2023, the World Health Organization (WHO) declared the end of the COVID-19 pandemic, but its global damage to the world health system and extraordinary socio-ethical upheavals of the pandemic has to be analyzed. It is still necessary to make conclusions that could neutralize post-pandemic threats in all spheres of public health. Vaccination has become a kind of "mirror" in which social and ethical problems are reflected with particular force. A great number of medical and news reports clearly demonstrate that there was a deep moral breakdown affecting all layers of civil society, starting from the development and creation of vaccines and ending with evaluation of vaccination effects [10, 32]. The dynamic exploration of various aspects of the phenomenon, in turn, has defined the area of our professional attention at all stages of vaccination.

A special commitment is to turn inside the profession and understand the role of health practitioners. Health care workers took the whole gravity of the pandemic and participated not only professionally, but personally — they were losing loved ones and colleagues, experienced a lack of objective data and were in the social informational field of fear and anxiety. Health practitioners faced moral frontier of duty and decision-making on vaccination for their patients band themselves. The first line of vaccination of the population and various work collectives were city outpatient clinics. It was necessary to organize and implement vaccination in a short period of time, which required the mobilization of organizational, medical, educational resources and great moral efforts.

AIM

To study medical specialists' opinion concerning vaccination for COVID-19.

MATERIALS AND METHODS

This study was carried out in a number of city outpatient clinics in St. Petersburg, where the population was vaccinated against COVID-19 between December 2020 and April 2023. In order to perceive the methodological format of the research, general specificity of mass vaccination against COVID-19 should be taken into account. Prerequisites for achieving higher vaccination coverage were: availability of regulatory framework, availability of vaccines, public awareness to increase vaccination adherence, improvement of logistics and infrastructure of the vaccination process. In practical terms, it involved developing new and adapting existing federal guidelines and regulations, implementing them, creating a guaranteed stock of vaccines, ensuring their quality storage and rational use. In addition, it was obligatory to implement a diverse level of contact and notification of population, to change routine vaccination practices, to introduce new logistics chains, which, in turn, required constant and regular training of the personnel involved. The high level of dynamic tension in the sphere of regulation and ethical support of medical and epidemiological activities during the COVID-19 pandemic determined the relevance of the study reflecting the social and moral cross-section of COVID-19 vaccination.

The above-mentioned provisions formed the base of the system, which determined the conditions of our health workers' survey conducted at the end of 2022, the second year of the mass immunization campaign. A special questionnaire was developed for this purpose. There was made an attempt to cover all links in immunization organization which were designed to ensure the most important factors for the formation of trust in vaccination — effectiveness, safety, normative and ethical justification. It was essential to choose a specific working group of observation and to take into account the factors which might influence the choice of a physician and his decision. These aspects constituted the methodological part of the research.

The survey was conducted among physicians who were directly involved in vaccination during the pandemic. They solved complex clinical tasks that required difficult moral conside-

rations on a daily basis, sometimes choosing between the provisions of recommendation documents and their own uncertainty about the correctness of their decisions. The departments where the respondents worked were adult and pediatric outpatient clinics, antenatal clinics, and emergency departments.

138 questionnaires were handed out. However, only 100 physicians took part in the voluntary anonymous survey, despite being informed in advance, obtaining the respondent's consent to participate in the study and detailed explanations of the purpose and objectives of the questionnaire. 60.0% of the respondents worked in outpatient service (pediatricians and therapists) and children's educational institutions, 10.0% worked in the administration of outpatient clinics, and 30.0% were narrow medical specialists. Distribution by length of service showed the following: 61.0% of respondents had more than 10 years of work experience, 24.0% — up to 5 years, 15.0% — 5–10 years. It is important to note that 75.0% of respondents had experience of participation in vaccination before the COVID-19 pandemic within the framework of implementation of the National Calendar of Preventive Vaccinations and the calendar of preventive vaccinations for epidemic indications.

Statistical processing was performed by means of STATISTICA software for Windows, v.10 (StatSoft, USA) using parametric and nonparametric criteria. Descriptive characteristics were calculated for each group: frequency of occurrence of a sign (for discrete signs), mean value of the indicator (M), standard deviation (σ), mean error (m), minimum, maximum, median and quartiles for signs with continuous distribution.

Categorical data are presented as relative (fractions, %) and absolute values; significance of differences was assessed using the χ^2 criterion with Yates correction. When it was necessary to detail the information, the proportion of positive responses was calculated by various characteristics: length of service, medical specialization, and subdivision. Since the quantitative data did not obey the law of normal distribution (according to the Kolmogorov–Smirnov criterion), they are presented in the form of median (Me) and interquartile range (Q1–Q3).

Multiple logistic regression analysis was used to identify factors associated with vaccination refusal. The odds ratio was determined, reflecting the closeness of association between feature A and feature B in a certain statistical population. Differences were considered statistically significant at a value $p < 0.05$. Physicians who reported a negative evaluation to vaccination were entered into the regression model as a dependent dichotomous variable (in the results). Graphs and charts were constructed in Excel and GraphPadPrism programs.

The analysis of questionnaire materials and statistical data was carried out sequentially according to the order of questions and sections of the questionnaire.

The protocol of the research and the "Doctor's Questionnaire" were submitted for ethical examination and were approved by the Local Ethics Committee (LEC) of the Medical Institution (the LEC session protocol of the St. Petersburg State Budgetary Institution of Public Health, City Outpatient Clinic No. 88 dd. 08.09.2022, No. 10).

RESULTS AND DISCUSSION

First of all, the analysis of the obtained data showed that all medical personnel were involved in the vaccination of the population against COVID-19, regardless of doctors' specialization.

When professional duties of respondents were clarified, it turned out that 14.0% were responsible for organizational issues of immunization, 75.0% — were directly involved in the procedure of admission to vaccination.

Certainly, we were interested in physicians' answers to the survey question: "*Have you been vaccinated against COVID-19? If yes, was this vaccination compulsory, i.e. related to work, to necessity of other kind or was it a personal decision?"*. In order to correctly perceive the answer to this question, it should be taken into account that the personal commitment of health workers to vaccination is based on the postulate of the irrefutable positive impact of immunization on an epidemic situation in terms of historical and current experience in the control and elimination of a number of manageable infections [7, 20]. Another level of the system is fulfillment of duties, execution of orders and the balance of different kinds of responsibilities that are specific for health care: professional, social and personal ones. Regarding the correlation of these parameters, it should be kept in mind that the personal responsibility of a medical professional cannot be completely separated from the other two, since medical duty requires personal protection in the aspect of correct anti-epidemic

behavior [6]. That is why it seems important to assess the results of the survey. Thus, among the respondents, only 77.0% of physicians were vaccinated against COVID-19. Among the vaccinated physicians, 61.0% were vaccinated voluntarily and 39.0% — compulsorily. According to the answers, 100% of outpatient clinic administration employees were vaccinated voluntarily. Figure 1 shows the analysis of respondents' answers depending on the length of service and specialty. 57.0% of general practitioners and 61.0% of pediatricians were vaccinated voluntarily (p=0.29). Physicians with more experience who were directly involved in treatment of patients with COVID-19 or who observed contacted individuals (general practitioners and pediatricians) were less committed to vaccination: 48.0% of physicians with more than 10 years of experience were vaccinated voluntarily; 73.0% of physicians with 5 to 10 years of experience; and 68.0% with less than 5 years of experience (p=0.01).

Attitude towards vaccination is far from 100% positive. It can be explained by the general

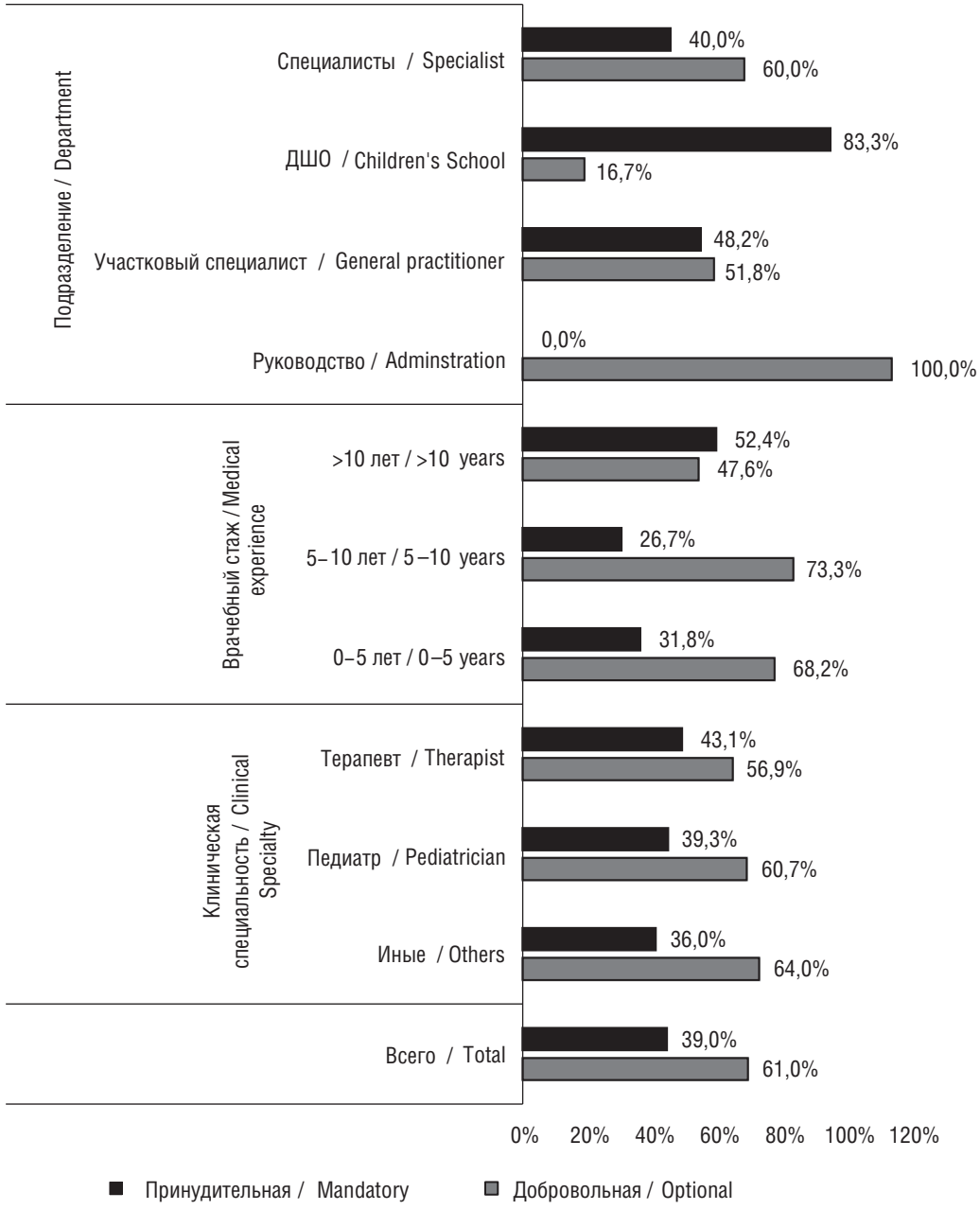

Fig. 1. Attitude of doctors to vaccination against COVID-19 depending on the specialty and work experience of the respondents

Рис. 1. Отношение врачей к вакцинации от COVID-19 в зависимости от специальности и стажа работы респондентов

failure of providing reliable data on vaccines and the infection itself, and by the unprecedented aggression and negativism towards vaccination in mass media. At the same time, there was a sharp division of both people's opinion, and a number of authoritative representatives of professional and religious communities, which have a powerful resource of influence, which was previously shown in a series of publications, including authors' ones [9, 10, 32, 33].

The method of multiple logistic regression analysis was used to study physicians' refusals to vaccinate. Figure 2 shows the odds ratio reflecting the strength of association between physicians' refusal to voluntary vaccination and the parameter, according to results of multiple logistic regression analysis. Factors that increase the probability of refusal are highlighted in red, those that decrease it are highlighted in green, and those that have no influence are highlighted in blue.

The results demonstrate that the most significant factor leading to a higher probability of refusal was a low assessment of the quality of the administered drug, both in terms of its safety (increasing the probability of refusal 2.4-fold) and immunogenicity (increasing the probability of refusal 4.13-fold). The strength of correlation between physicians' refusal of voluntary vaccination and their length of service and specialty was also shown. General practitioners (OR=2.3±1.1) with less than 5 years of experience (OR=2.67±0.71) refused to vaccinate more often.

Negative attitudes towards the vaccine administered and doubts about its quality also reduced odds of voluntary vaccination (OR=1.49±0.31

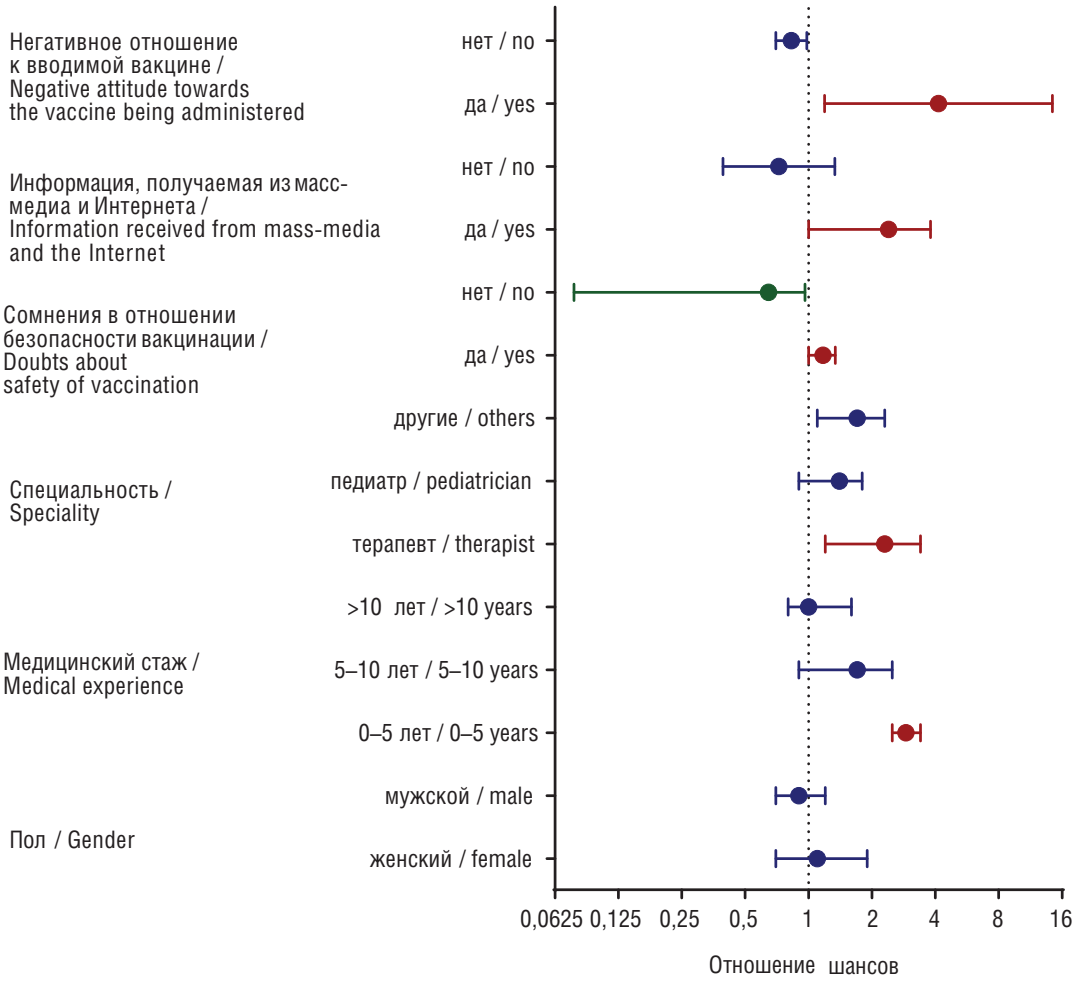

Fig. 2. Odds ratio of doctors refusing voluntary vaccination against COVID-19 depending on specialty, length of service and gender of respondents

Рис. 2. Отношение шансов отказа врачей от добровольной вакцинации против COVID-19 в зависимости от специальности, стажа и пола респондентов

and OR=4.27±1.27). Physicians' decision on voluntary vaccination was significantly influenced by information obtained from the media and the Internet (OR=2.12±0.43).

An important part of the questionnaire was the section "Legal Basis of Vaccination Prevention". When analyzing physicians' answers to this section, it is advisable to take into account the following realities of the legislation of the Russian Federation (RF). The stable legal framework of the Russian Federation is able to ensure the quality and effectiveness of each stage of vaccination and guarantee compliance with universal ethical principles when it is carried out in a routine, non-extreme mode [31]. The basic principles and provisions regulating vaccination prevention in the Russian Federation are defined in the Federal Law (FL) of 17.09.1998 No. 157-FZ "On Immunological Preventions of Infectious Diseases". These principles are reflected in the 'Practical Manual', in the current version of the National Calendar of Preventive Vaccinations and the Calendar of Preventive Vaccinations for Epidemic indications, which is available to every specialist involved in vaccination [14]. Knowledge of these provisions is a part of professional duties of every physician. It constitutes the basic legal and ethical foundation of vaccination prevention [2–4, 17–19]. According to the questionnaire data, the majority of the surveyed physicians (94.0%) believed that they were quite familiar with the provisions of national legislation on vaccination prevention. When specifying the sources of information, 59.0% of respondents mentioned relevant seminars in their area of expertise, 32.0% reported that they studied documents on their own, 4.0% were guided by mass media, 3.0% — by medical brochures, and 2.0% — by reports of opinion leaders.

Only 56.0% of respondents expressed their opinion on the way how basic principles of vaccination prevention are implemented in practice. Among them, 75.0% believed that the population is objectively informed, the principle of voluntariness is observed, and the effec-

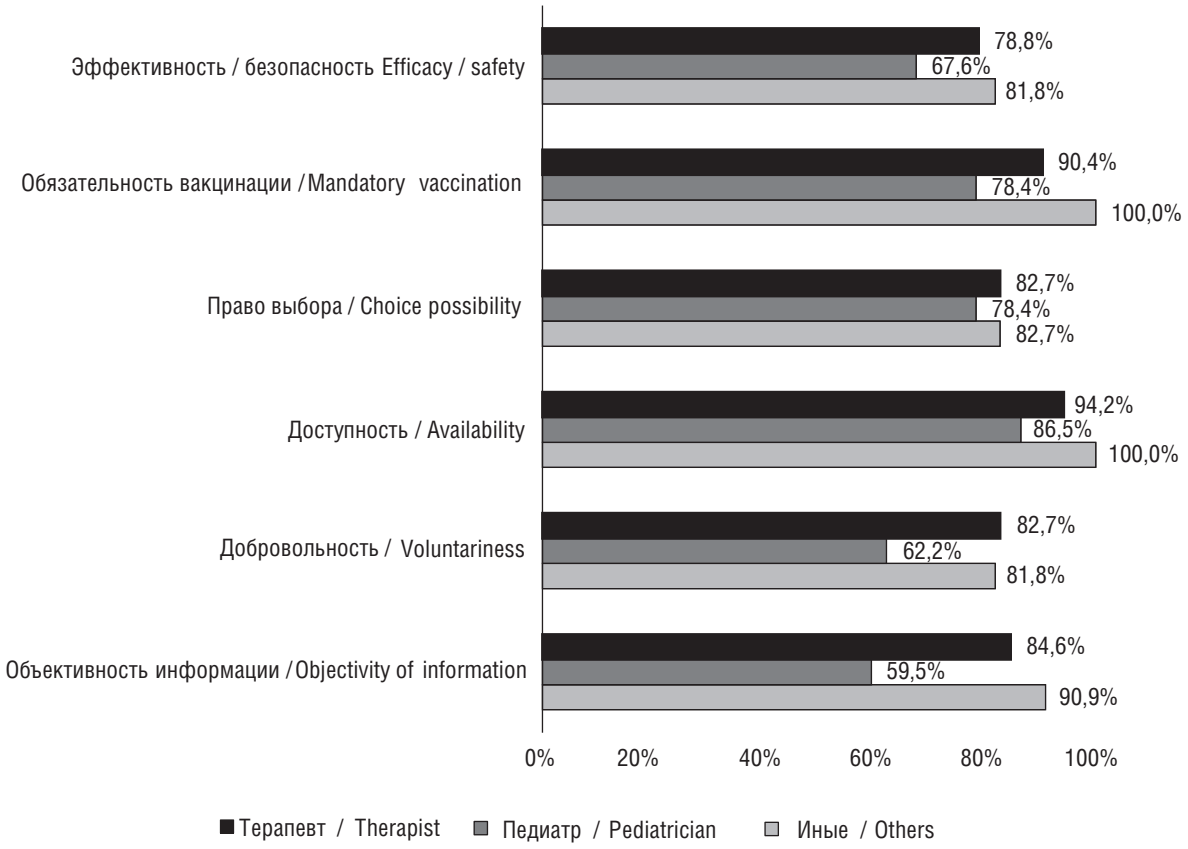

Fig. 3. Distribution of responses from doctors of various specialties regarding the implementation of vaccination principles

Рис. 3. Распределение ответов врачей разных специальностей относительно реализации принципов вакцинации

tiveness and safety of vaccination is monitored and recorded; 92.0% noted its accessibility; 82.0% believed that the patient's right to choose a medical institution and vaccine is exercised; and 87.0% believed that vaccination of persons with certain professions is mandatory. Figure 3 shows the opinion of different specialists concerning implementation of vaccination principles. The most positive answers regarding the observance of principles were received from general practitioners and other specialties, in contrast, pediatricians reported that these principles were observed less frequently. Unfortunately, physicians did not provide explanations for their answers.

It should be noted that with regard to vaccination tactics, the COVID-19 pandemic period was not a common situation and was more vulnerable in terms of the legal competence of physicians. Health workers were in extreme conditions both physically (due to the lack of human, time and material resources), morally and intellectually (due to the lack of sufficient reliable and tested data), and legally. Namely, due to the extraordinary nature of current lawmaking, such a term as "viral jurisprudence" appeared in legal doctrine [21]. As a result of emergency conditions, situational legislation was formed, which established a special regime of interaction between the state and the population with significant restrictions on the rights of citizens and organizations, redistribution of powers between public authorities, which, in turn, affected the legitimacy of decisions [5, 12].

Many issues which ought to be subjects of legal regulation at the level of the lawmaking, were in fact resolved by subordinate normative acts. In normal conditions of society functioning, this factor shifts the balance of the three branches of power towards the executive one. According to 2022 data, the number of bylaws at the federal level was 14 times higher than the number of adopted federal laws. The total number of acts approved at the federal level alone was 855 documents, including 388 normative legal acts and 451 documents of recommendatory and informational nature. Among these documents there are 25 federal laws, 16 decrees of the President of the Russian Federation, 119 resolutions of the Government of the Russian Federation [21]. Many physicians do not have sufficient knowledge of the fundamental legal basis of vaccination prevention, so that navigating in such a large array of new documents, which are questionable, is especially difficult. Legislative restrictions have affected not only freedom of movement, available social services, education, security, family life, protection of personal data and labor guarantees, but also such rights as respect for human dignity and voluntary participation in a medical experiment, which are recognized as natural, inalienable and guaranteed by the highest law — the Constitution of the Russian Federation. Legal conflicts were obvious not only to professional lawyers, but also to a competent medical community. This fact definitely did not contribute to a strong commitment to promote COVID-19 vaccines among physicians. Moreover, it generated distrust of public health care in society [1].

The responsibility of physicians to develop positive attitudes towards vaccination is essential. 64.0% of respondents in our study acknowledged this importance, including 67.6% of pediatricians, 90.0% of medical specialists and 75.0% of general practitioners.

Before analyzing and interpreting the answers concerning attitude to vaccination. It must be mentioned that vaccines have been created as a tool to restrain the pandemic, which was legitimate, justified and socially demanded [9, 10]. More than 122,100 doses of Gam-COVID-Vac (Sputnik V), more than 300 doses of Gam-COVID-Vac-M, more than 19,900 doses of Sputnik Lite, more than 2,840 doses of EpiVac-Corona and more than 3,030 doses of CoviVac were used during the implementation of the mass immunization program against COVID-19. The data is provided by one of the institutions participating in the study, according to the 'Official Daily Statistical Report of the Institution "Primary Report on Form 40 COVID-19". The above list convincingly demonstrates the numerical dominance of vaccines belonging to the common platform "Sputnik V" (Gam-COVID-Vac, Gam-COVID-Vac-M, Sputnik Lite), amounting to more than 142,300 doses in total. The ratio was 50 and 47 times higher compared to other classes of vaccines, such as EpiVac-Corona and CoviVac, respectively. This correlation was important in clarifying physicians' attitudes towards Russian-made vaccines against COVID-19, based on the main criteria of vaccine quality: efficacy, safety and availability of the drugs.

According to the respondents' answers (Fig. 4), Sputnik V and Sputnik Lite vaccines were identified as the most available: 97.0 and 84.0%, respectively. The same vaccines were also identified as the most effective: 88.0 and 81.0%, respectively. We can interpret these results as an objective opinion, as the number of doses of vaccines used during the vaccination campaign allowed us to form the physicians' attitude towards the vaccine in terms of tolerability. 89.0 and 87.0% of physicians were confident in their safety. However, the EpiVacCorona vaccine was rated the safest (98.0%), and 74% of physicians were confident in the safety of the CoviVac vaccine (p=0.00028), although the number of products used was very limited. Moreover, many physicians did not work with them. It is difficult to say how physicians determined the efficacy of the CoviVac and EpiVacCorona vaccines, rating them 66.0 and 59.0% (p=0.31), respectively, as their experience was also limited both by the quantity of the vaccines, and often by the lack of actual surveillance practice. In our opinion, indicators concerning CoviVac and EpiVacCorona vaccines cannot be objective since groups of vaccinated people were small: during two years only 1349 people were vaccinated with EpiVacCorona vaccine and 1314 — with CoviVac vaccine.

The formation of physicians' opinion about vaccines is facilitated by positive information support [27]. However, there were no publications on the results of official studies in relation to effectiveness and safety of the vaccines during mass vaccination against COVID-19. Such sources were not accessible to a wide range of physicians. The lack of objective information contributed to a skeptical attitude of medical specialists towards vaccines which led to low adherence to vaccination [13, 15, 22–24]. Similar facts have been demonstrated in a number of studies conducted in other countries [26, 28].

Respondents were also asked to evaluate foreign vaccines against COVID-19. Figure 5 shows that only a small number of respondents expressed their opinion about the vaccines, and mostly respondents answered honestly: "I don't know'. When asked: "Which of the foreign vaccines would you like to have in your arsenal?", the respondents preferred the Pfizer vaccine.

The survey also involved investigation of the ability to choose one or another domestic vaccine against COVID-19 when admitting a patient to vaccination, as well as the physicians' arguments for making this choice. It was established that 72.0% of respondents were able to choose a vaccine. 83.3% of the above-mentioned were guided by medical indications, and 81.9%

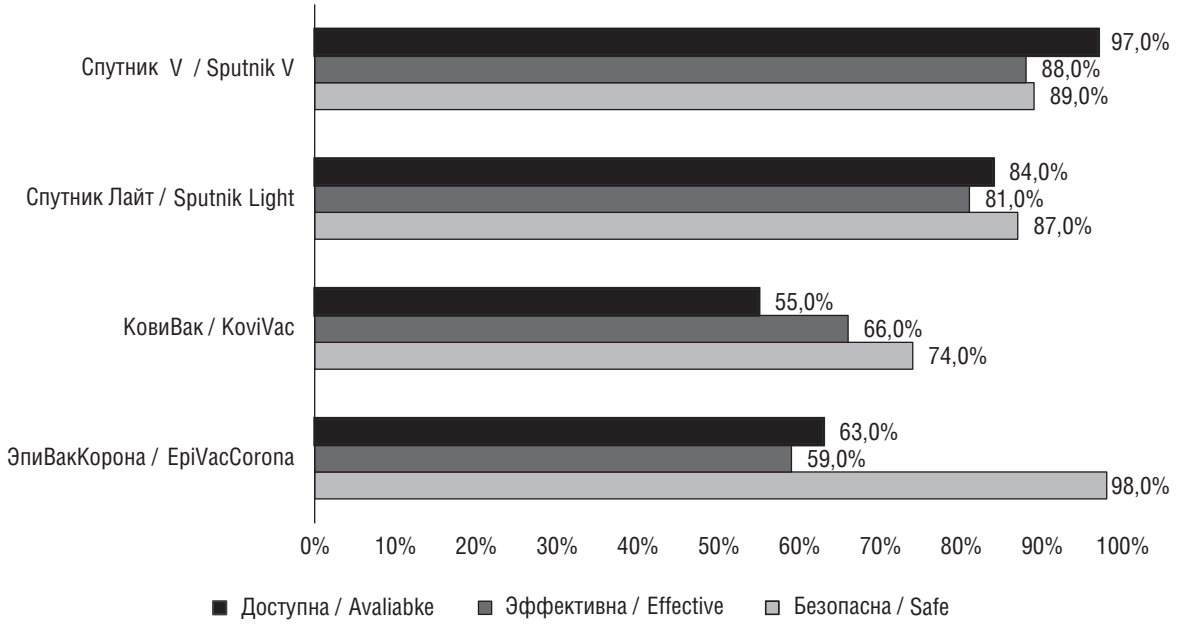

Fig. 4. The attitude of doctors towards Russian-made vaccines against COVID-19, depending on the main criteria for the quality of vaccines

Рис. 4. Отношение врачей к вакцинам российского производства против COVID-19 в зависимости от основных критериев качества вакцин

took into account patient's wishes. Commenting on the answers to this question, it should be emphasized that doctors were primarily guided by compliance with drug instructions and clinical recommendations, respecting the patient's right to choose a drug at the same time. It is important to note that regulatory documents of the Ministry of Health of the Russian Federation regulating the procedure of vaccination against COVID-19, as well as instructions for the use of specific vaccines, were regularly updated as clinical and scientific data had been accumulated [2].

The next section of the questionnaire included questions concerning the vaccination procedure. One of the most interesting issues concerns implementation of the basic principle of vaccination, namely — informing patients which is prescribed in normative documents [4, 17–19]. 100% of respondents answered this question. 96.0% clearly identified that informing patients about vaccines was one of their main tasks. At the same time, 91.0% noted they talked about the necessity of vaccination with their patients, 94.0% — about the consequences of refusing

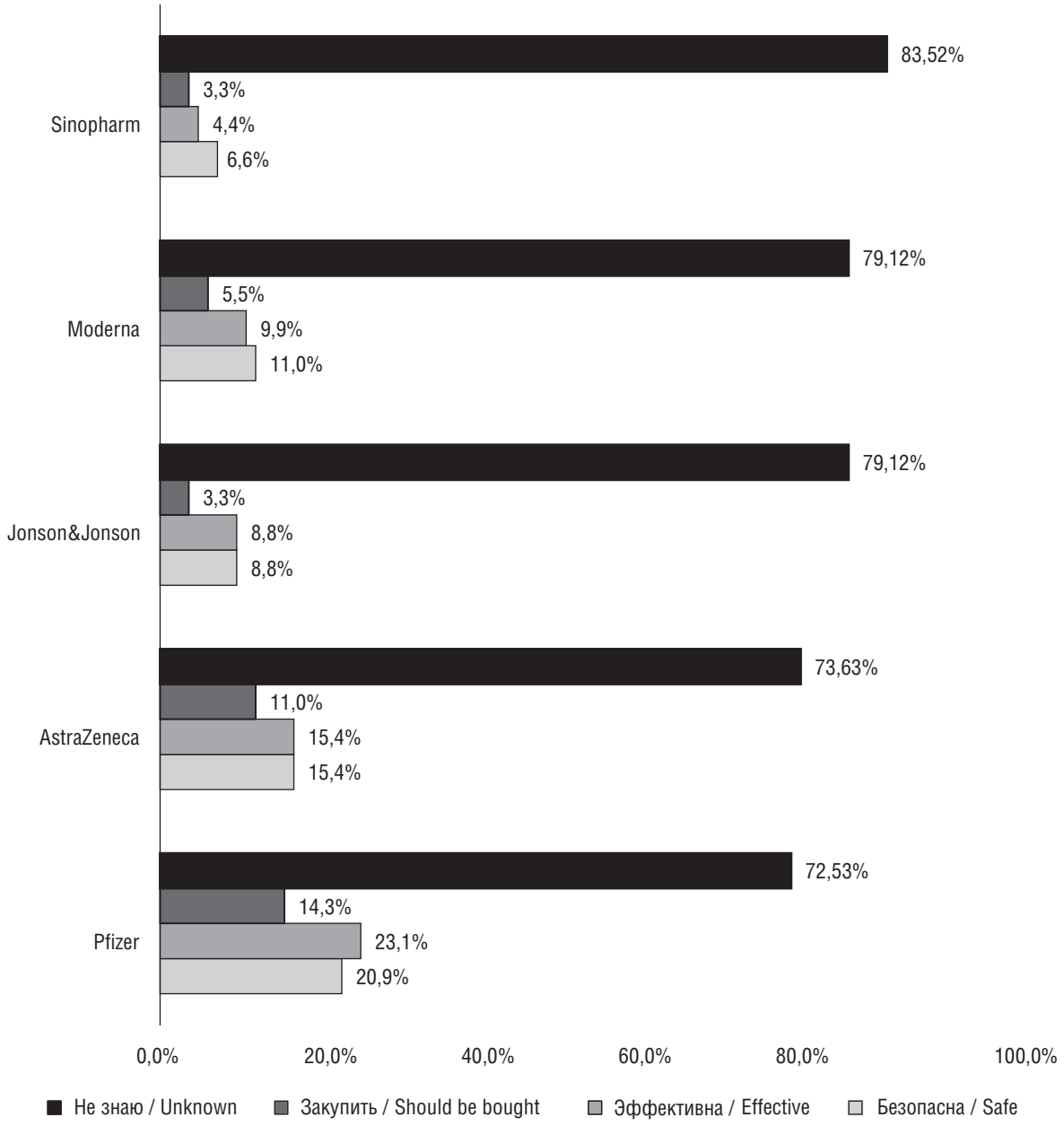

Fig. 5. The attitude of doctors towards foreign vaccines against COVID-19

Рис. 5. Отношение врачей к вакцинам против COVID-19 зарубежных производителей

vaccination, 94.0% — about post-vaccination phenomena, 87.0% — about vaccine safety, 83.0% informed the patient about the possibility of choosing a vaccine, 81.0% — about the possibility of choosing a medical facility outside the place of residence, 75.0% — about the possibility of choosing a doctor.

Physicians' arguments regarding the purpose of vaccination (Fig. 6) were as follows: 75.0% of general practitioners, 73.0% of pediatricians and 63.6% of other medical specialists suggested vaccination to prevent the spread of infection; respectively, 78.8% of general practitioners, 81.1% of pediatricians and 81.8% of other specialists suggested the vaccine to prevent the disease; 80.8% of general practitioners, 91.9% of pediatricians and 90.9% of other specialists recommended the vaccine as a guarantee of a milder course of the disease; 86.5% of general practitioners, 89.2% of pediatricians and 81.8% of other specialists suggested vaccination as a individual protection against COVID — 19%. 64.0% of all respondents considered this mission as their civil duty.

The results of the "complex" role of vaccination against COVID-19 should be understood on the basis of one of the most important and difficult tasks of health care systems in different countries. Namely, it is ensuring and stable maintenance of high coverage of the population with vaccinations against controllable infections. Public trust in vaccination is a priority factor in achieving this goal [8, 11].

In this regard, the following block of questions was extremely significant. It revealed doctors' opinions on reasons for patients' refusal of routine vaccination and vaccination against COVID-19, doctors' actions when patients refused to get vaccinated, as well as their attitudes towards some ethical issues.

The reasons for patients' refusals, according to physicians, were as follows (Fig. 7): 44.0% of respondents named fear of infection; 51.0% wrote that patients do not feel socially protected

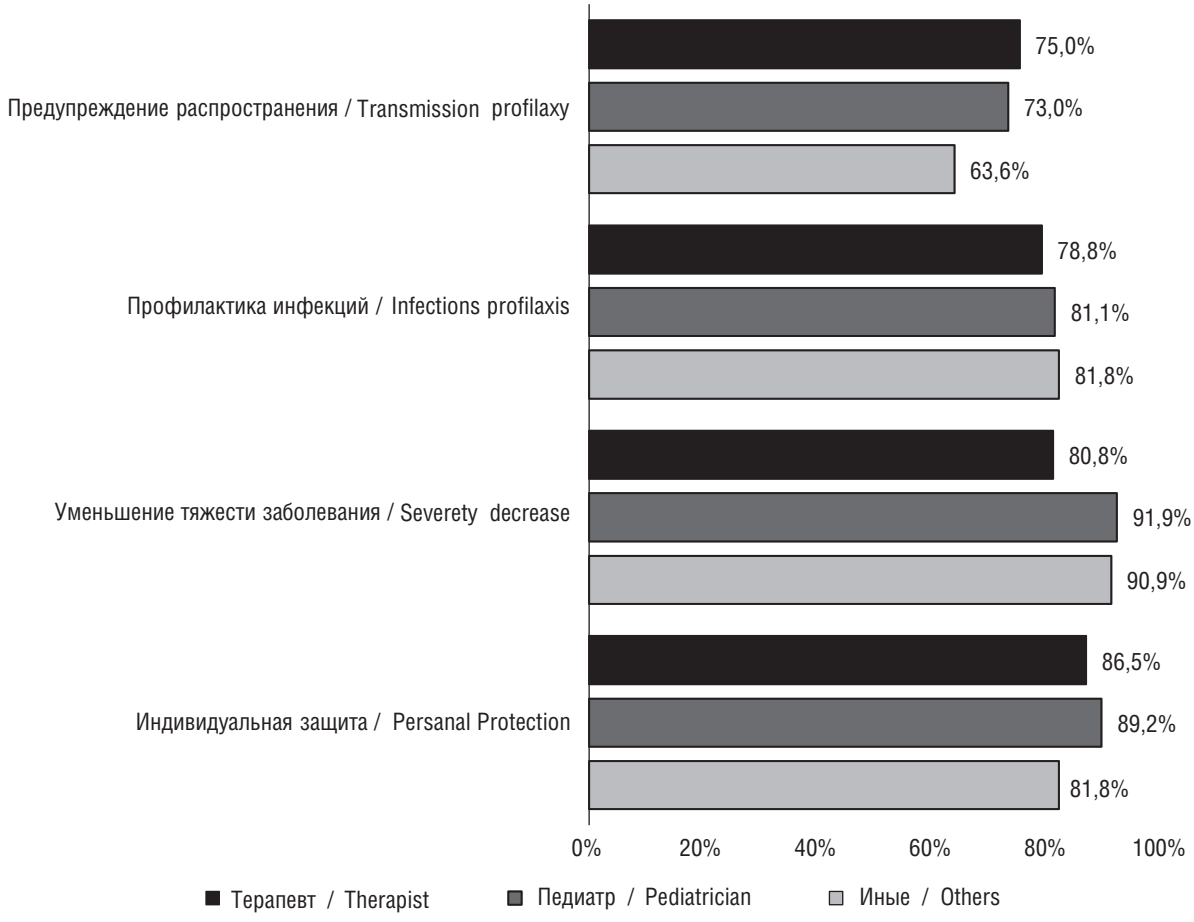

Fig. 6. Opinions of specialists in various fields about the leading arguments in justifying the need for vaccination

Рис. 6. Мнение специалистов различного профиля о ведущих аргументах при обосновании необходимости вакцинации

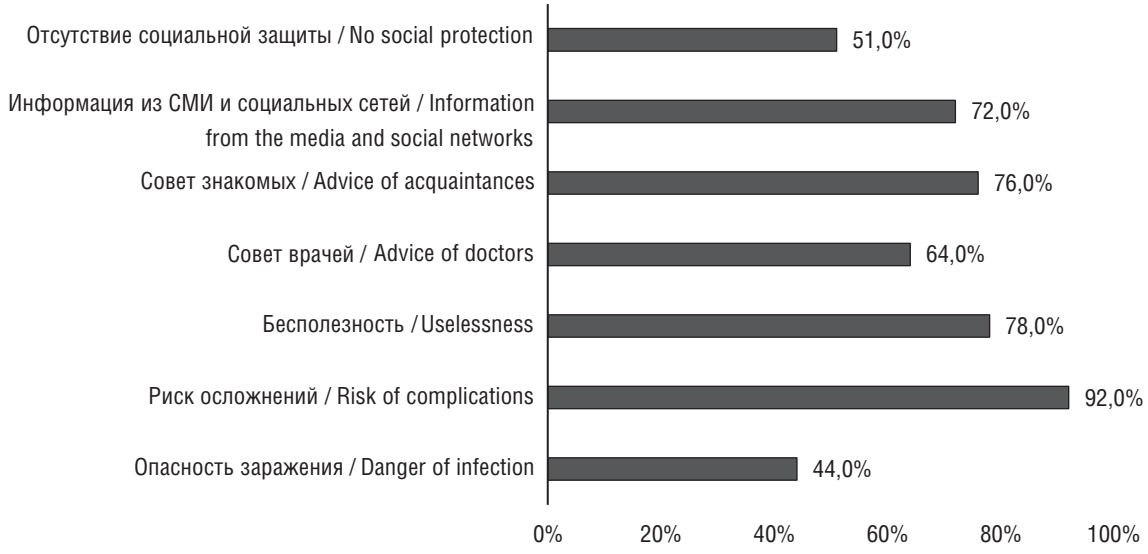

Fig. 7. The leading arguments for patients' refusal of routine vaccination according to respondents' opinion

Рис. 7. Ведущие аргументы отказа пациентов от рутинной вакцинации по мнению респондентов

in case of postvaccinal complications; 64.0% — that patients listen to doctors' advice; 72.0% believe that social networks and mass media play a leading role; 76.0% — that patients follow the advice of acquaintances and relatives; 78.0% are sure that patients consider vaccination useless; 92.0% — that patients are afraid of complications.

Analyzing the respondents' answers to the directly posed question: *"In your opinion, do parents protect or violate children's rights when refusing vaccination?"*, 80.0% of doctors, regardless of seniority and specialty, answered: "Parents violate children's rights". It should be noted that 89.2% of pediatricians think so.

The respondents determined the reasons for patients' unwillingness to vaccinate specifically against COVID-19 as follows: 42.0% mentioned fear of complications after vaccination; 87.0% indicated that patients thought vaccination was useless; 87.0% were sure that patients did not trust vaccine research and trials; 91.0% believed that there was very little information about vaccines; but most of all (94.0%) that the opinion of others had a great influence. This question was answered by 97.0% of respondents, and regardless of seniority and specialty, all doctors shared these assessments. The answers of respondents of different specialties and length of service are presented in Figure 8. In summary, it should be noted that during routine vaccination and vaccination against COVID-19, doctor' opinions about the reasons for patients' refusal to be vaccinated did not always coincide. Thus, in the case of COVID-19 vaccination, the respondents less frequently mentioned such a reason as the risk of complications, and more frequently mentioned the importance of other people's opinions about vaccines and the uselessness of vaccination. Respondents did not mention the risk of infection as an argument for patients' refusal to be vaccinated against COVID-19 at all.

Interestingly, the data of sociological surveys published in the central press indicated the same arguments for refusing vaccination, on the one hand, concerning the lack of open and objective data, and on the other hand, the abundance of incompetent and contradictory information in the popular press [9, 16, 32].

There has been a discussion in literature regarding actions that a physician should take when a patient refuses vaccination in general and in the case of COVID-19 vaccination in particular [30]. Our respondents were also questioned on this issue. 40.0% of physicians noted that when a patient refuses vaccination, they make a note in the relevant document and do not continue the conversation; 80.0% try to persuade patients by carefully explaining the risks; 62.0% also warn about sanctions, such as problems with travelling, visiting public places, and other. In general, respondents' answers indicate that not all doctors want to discuss vaccination with patients who initially refuse vaccination.

According to a number of authors, it may be caused by an imbalance between the difficulty of talking to the patient or his/her parents and the doctor's capabilities within the framework of routine practice, the patient's unwillingness to listen to a different opinion or information, and, what seems most important, the doctors' lack of communication skills in dealing with such patients. This problem has a systemic nature and requires consolidation of efforts of the state, civil society, and the medical community [25, 29].

The survey raised the question about the need for confidentiality of information about vaccination: *"Should and can doctors inform third parties about the fact that a particular person has not been vaccinated against a particular infection?"*. The respondents' opinions were equally divided: 50.0% believed that information about a patient's refusal to be vaccinated could be available to third parties, while the rest were in favour of confidentiality of such information. Unfortunately, they did not explain their answer.

On the one hand, this kind of information could become an instrument of discrimination against a person, on the other hand, the absence of this information in case of unwillingness or

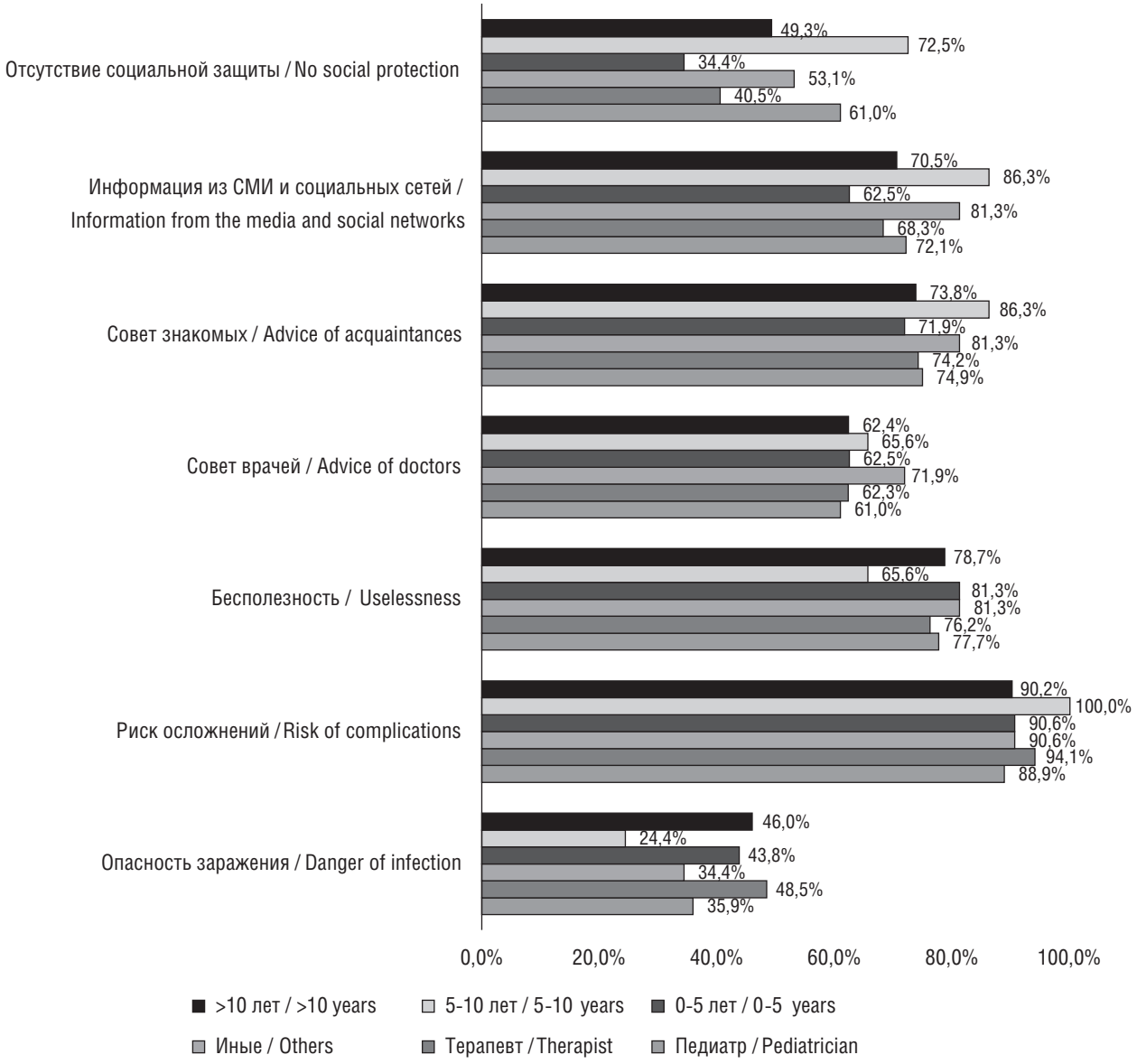

Fig. 8. The leading arguments for patients refusing vaccination against COVID-19 according to respondents of different specialties and work experience

Рис. 8. Ведущие аргументы отказа пациентов от вакцинации против COVID-19 по мнению респондентов разных специальностей и стажа работы

inability to report the fact of non-vaccination by a patient in certain conditions could carry a serious danger for other people and vulnerable groups.

Finally, respondents were asked: *"Is there a need for mandatory (compulsory) immunisation?"* Opinions were divided: 54.0% of respondents were in favour of introducing compulsory (forced) immunisation, while 46.0% of doctors were against, arguing that a person has freedom of choice. 49.0% of respondents considered it is necessary to forcefully vaccinate children, 12.0% among them explained their answer by the epidemiological significance of creating collective immunity. It is fairly stated in the case of the immunisation campaign against COVID-19 that compulsory vaccination was obscured by social and legal restrictions.

CONCLUSION

The results of the survey of physicians who were directly involved in vaccination prevention during the pandemic indicated that 77.0% of physicians who participated in the study were vaccinated against COVID-19, only 61.0% of them vaccinated voluntarily, and physicians with more experience were less committed to vaccination. The most significant factor that increased probability of refusal was low assessment of the quality of the administered drug and its immunogenicity. Only 56.0% of respondents expressed their opinion on how the basic principles of vaccination prevention organization are implemented in practice, namely: objective information of the population is provided, the principle of voluntariness is observed, and the effectiveness and safety of vaccination are monitored and recorded. 72.0% of respondents had the opportunity to choose a vaccine against COVID-19 when admitting a patient to vaccination, based on medical indications, the patient's desire and guided by compliance with the instructions for the drugs and clinical recommendations. According to the doctors' answers, when implementing the main principle of vaccination — informing patients, they informed them more about the necessity of vaccination, the consequences of refusing vaccination, post-vaccination phenomena, and less about the possibility of choosing a vaccine, medical institution, doctor, etc. More than 70% of physicians offered patients to be vaccinated against COVID-19 in order to prevent the spread of infection, to prevent the disease; as a guarantee of a lighter course of the disease, as a personal protection against infection. It is important that 64.0% of all respondents considered this mission as their civil duty.

Physicians' opinions concerning reasons for patients' refusal of routine vaccination and COVID-19 vaccination did not always coincide. Thus, when vaccinating against COVID-19, respondents indicated that patients considered vaccination useless, noted the lack of reliable information, and were mainly guided by the opinions of other people. Although 92.0% of respondents wrote that patients were afraid of complications during routine vaccination, this argument was not mentioned when patients refused vaccination against COVID-19. 54.0% of respondents supported the introduction of mandatory (compulsory) immunization, motivating the answer by the epidemiological significance of collective immunity. Those who were against (46.0%) argued that the individual had freedom of choice.

Consequently, the full context and results of our study, together with the materials of similar works, convincingly indicate the presence of a number of unresolved problems, primarily related to the necessity to increase the normative and humanitarian component of vaccination education and information programs. At the same time, the focus should be on legal and ethical long-term training of all professionals involved in the vaccination process. In addition, it is necessary to develop information sources with educational programs on vaccination and create open and qualified counseling resources to build trust and positive perception of vaccination, with a mandatory component of building feedback and dialogue with the community.

ADDITIONAL INFORMATION

Author contribution. Thereby, all authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be published and agree to be accountable for all aspects of the study.

Competing interests. The authors declare that they have no competing interests.

Funding source. This study was not supported by any external sources of funding.

Consent for publication. Written consent was obtained from the patient for publication of relevant medical information within the manuscript.

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ

Вклад авторов. Все авторы внесли существенный вклад в разработку концепции, проведение исследования и подготовку статьи, прочли и одобрили финальную версию перед публикацией.

Конфликт интересов. Авторы декларируют отсутствие явных и потенциальных конфликтов интересов, связанных с публикацией настоящей статьи.

Источник финансирования. Авторы заявляют об отсутствии внешнего финансирования при проведении исследования.

Информированное согласие на публикацию. Авторы получили письменное согласие пациентов на публикацию медицинских данных.

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