



Wiadomości Lekarskie

Official journal of the Polish Medical Association



Memory of
dr Władysław
Biegański

VOLUME LXXV, ISSUE 9 PART 1, SEPTEMBER 2022

Since 1928



ALUNA Publishing House

Wiadomości Lekarskie is abstracted and indexed in: PUBMED/MEDLINE, SCOPUS, EMBASE, INDEX COPERNICUS,
POLISH MINISTRY OF EDUCATION AND SCIENCE, POLISH MEDICAL BIBLIOGRAPHY

Copyright: © ALUNA Publishing House.

Articles published on-line and available in open access are published under Creative Common Attribution-Non Commercial-No Derivatives 4.0 International (CC BY-NC-ND 4.0) allowing to download articles and share them with others as long as they credit the authors and the publisher, but without permission to change them in any way or use them commercially.

Wiadomości Lekarskie monthly journal

You can order the subscription for the journal from Wydawnictwo Aluna by:

prenumerata@wydawnictwo-aluna.pl
Wydawnictwo Aluna
Z.M. Przesmyckiego 29
05-510 Konstancin-Jeziorna
Poland

Place a written order first.

If you need, ask for an invoice.

Payment should be done to the following account of the Publisher:

account number for Polish customers (PLN):

82 1940 1076 3010 7407 0000 0000

Credit Agricole Bank Polska S. A., SWIFT: AGRIPPLR

account number for foreign customers (EURO):

57 2490 0005 0000 4600 7604 3035

Alior Bank S. A.: SWIFT: ALBPPLPW

Subscription of twelve consecutive issues (1-12):

Customers in Poland: 480 PLN/year

Customers from other countries: 360 EURO/year



Wiadomości Lekarskie

Editor in-Chief:

Prof. Władysław Pierzchała

Deputy Editor in-Chief:

Prof. Aleksander Sieroń

Statistical Editor:

Dr Lesia Rudenko

Managing Editor:

Agnieszka Rosa – amarosa@wp.pl

International Editorial Office:

Nina Radchenko (editor)

– n.radchenko@wydawnictwo-aluna.pl

Polish Medical Association (Polskie Towarzystwo Lekarskie):

Prof. Waldemar Kostewicz – President PTL

Prof. Jerzy Woy-Wojciechowski – Honorary President PTL

International Editorial Board – in-Chief:

Marek Rudnicki

Chicago, USA

International Editorial Board – Members:

Kris Bankiewicz	San Francisco, USA	George Krol	New York, USA
Christopher Bara	Hannover, Germany	Krzysztof Łabuzek	Katowice, Poland
Krzysztof Bielecki	Warsaw, Poland	Jerzy Robert Ładny	Białystok, Poland
Zana Bumbuliene	Vilnius, Lithuania	Henryk Majchrzak	Katowice, Poland
Ryszarda Chazan	Warsaw, Poland	Ewa Małecka-Tendera	Katowice, Poland
Stanislav Czudek	Ostrava, Czech Republic	Stella Nowicki	Memphis, USA
Jacek Dubiel	Cracow, Poland	Alfred Patyk	Gottingen, Germany
Zbigniew Gasior	Katowice, Poland	Palmira Petrova	Yakutsk, Russia
Mowafaq Muhammad Ghareeb	Baghdad, Iraq	Krystyna Pierzchała	Katowice, Poland
Andrzej Gładysz	Wrocław, Poland	Waldemar Priebe	Houston, USA
Nataliya Gutorova	Kharkiv, Ukraine	Maria Siemionow	Chicago, USA
Marek Hartleb	Katowice, Poland	Vladyslav Smiianov	Sumy, Ukraine
Roman Jaeschke	Hamilton, Canada	Tomasz Szczepański	Katowice, Poland
Andrzej Jakubowiak	Chicago, USA	Andrzej Witek	Katowice, Poland
Oleksandr Katrushov	Poltava, Ukraine	Zbigniew Wszolek	Jacksonville, USA
Peter Konturek	Saalfeld, Germany	Vyacheslav Zhdan	Poltava, Ukraine
Jerzy Korewicki	Warsaw, Poland	Jan Zejda	Katowice, Poland
Jan Kotarski	Lublin, Poland		

Distribution and Subscriptions:

Bartosz Guterman prenumerata@wydawnictwo-aluna.pl

Graphic design / production:

Grzegorz Sztank

www.red-studio.eu

Publisher:

ALUNA Publishing House

ul. Przesmyckiego 29,

05-510 Konstancin – Jeziorna

www.wydawnictwo-aluna.pl

www.wiadomoscilekarskie.pl

www.wiadlek.pl

CONTENTS

ORIGINAL ARTICLES

- Roman I. Vynogradov, Oleksandr S. Tyvonchuk, Vitalii V. Moskalenko, Dmitry Y. Zhytnik
EARLY METABOLIC DISORDERS AND MORPHOLOGICAL CHANGES OF INTERNAL ORGANS AFTER GASTRIC BYPASS WITH ONE ANASTOMOSIS. EXPERIMENTAL STUDY 2051
- Hendrik Hendrik, Massila Kamalrudin, Mohamad Razali, Schandra Purnamawati, Arundito Widikusumo
CONTROL FACTORS FOR SITE ERRORS MANAGEMENT OF RADIOTHERAPY DELIVERY 2060
- Ganna O. Syrova, Olena V. Savelieva, Tetyana S. Tishakova, Larysa V. Lukianova
EXPERIMENTAL RESEARCH OF THE EFFECT OF COXIBS ON THE CERULOPLASMIN LEVEL IN RAT SERUM ON THE FORMALIN-INDUCED EDEMA MODEL 2065
- Kateryna Liakh, Yaroslav Shkorbotun
ANATOMICAL RATIONALE FOR CHOOSING A BLADE FOR POWER-ASSISTED ADENOIDECTOMY IN CHILDREN DEPENDING ON DENTITION 2070
- Ahmad Methkal, Larisa Kuts
REVEALING THE MOLECULAR-GENETIC AND CLINICAL PREDICTORS OF GLUCOCORTICOID RESISTANCE IN PATIENTS WITH HAND ECZEMA 2076
- Inna Borysova, Tetyana Potapova
ASSESSMENT OF FUNCTIONAL ACTIVITY REDUCTION – AS A CRITERION FOR DETERMINING DISABILITY IN PATIENTS WITH RHEUMATOID ARTHRITIS 2081
- Anatolii V. Ipatov, Nataliia A. Sanina, Inna Y. Khanyukova, Olena M. Moroz
THE POSSIBILITIES OF DISABILITY LEVEL DETERMINATION BASED ON THE INTERNATIONAL CLASSIFICATION OF FUNCTIONING WITH THE WHO DISABILITY ASSESSMENT SCHEDULE (WHODAS 2.0) 2086
- Julia V. Ivanova, Svitlana M. Gramatyuk, Yuriy O. Vinnyk, Sergii V. Viun, Tetiana I. Viun, Mykola M. Goloborodko
FORECASTING THE DEVELOPMENT OF PURULENT-INFLAMMATORY POSTOPERATIVE COMPLICATIONS IN PATIENTS WITH OBSTRUCTIVE BOWEL OBSTRUCTION 2092
- Katerina Maliarchuk, Andrey V. Ganul, Bogdan O. Borisyuk, Leonid V. Bororov, Anatoly I. Shevchenko, Vladimir M. Sovenko
PROSPECTS OF NEOADJUVANT CHEMORADIOTHERAPY IN PATIENTS WITH STAGE III A NON-SMALL CELL LUNG CANCER AS A METHOD OF IMPROVING SURVIVAL 2098
- Valeria Tyshchenko, Nikolay Malikov, Nadia Bogdanovska, Olga Sokolova, Ivan Hlukhov, Anna Hlukhova, Katerina Drobot, Denys Tyshchenko
PECULIARITIES OF VASOR-REGULATING FUNCTIONS OF THE VASCULAR ENDOTHELIUM IN ADAPTATION OF THE YOUTH BODY TO SYSTEMATIC PHYSICAL LOADS 2103
- Anatolii Yareshko, Maryna Kulish
HOMEOSTATIC ROLE OF GLUCOCORTICOIDS IN THE TREATMENT OF PULMONARY TUBERCULOSIS 2108
- Sergiy O. Khmyzov, Yelyzaveta S. Katsalap, Mykhailo Ju. Karpinsky, Olena Karpinska
EXPERIMENTAL STUDY OF BONE DENSITY IN PATIENTS WITH CONGENITAL PSEUDOARTHROSIS OF THE TIBIA BEFORE AND AFTER SURGERY 2112
- REVIEW ARTICLES**
- Eleni A. Georgakopoulou, Georgios Kostakis
TOPICAL AGENTS FOR THE PREVENTION AND TREATMENT OF ORAL MUCOSITIS 2121
- Viktoriiia V. Furman, Olena M. Reva, Tetiana P. Tsiuman, Iryna A. Lukianenko
SOCIO-PSYCHOLOGICAL BARRIERS OF INDIVIDUAL REGARDING COVID-19 VACCINE ACCEPTANCE 2126
- Vivian Carbogno-Barnabe, Beata Łabuz-Roszak
THE ROLE OF DIET IN MULTIPLE SCLEROSIS 2131

REVIEW ARTICLE

SOCIO-PSYCHOLOGICAL BARRIERS OF INDIVIDUAL REGARDING COVID-19 VACCINE ACCEPTANCE

DOI: 10.36740/WLek202209114

Viktoriia V. Furman¹, Olena M. Reva¹, Tetiana P. Tsiuman¹, Iryna A. Lukianenko²¹BORYS GRINCHENKO KYIV UNIVERSITY, KYIV, UKRAINE²BOGOMOLETS NATIONAL MEDICAL UNIVERSITY, KYIV, UKRAINE

ABSTRACT

The aim: The aim of the article is to analyse the socio-psychological barriers to the COVID-19 vaccination process in the world and in Ukraine.

Materials and methods: Electronic databases of Web of Science, Scopus and PubMed were searching using keyword searches.

Conclusions: The implementation of an effective scientific strategy of health education and communication between representatives of the medical sphere and representatives of different social groups, gender and age is relevant today. At the moment it is difficult for the medical community and society to give an unambiguous assessment of the facts about COVID-19, because it is still unknown about the long-term impact of the COVID-19 pandemic on individual. To increase the vaccination coverage, vaccination evidence should be standardized and a choice of conditions, algorithm of beliefs instead of a standard approach should be proposed. Further research on individual health benefits is needed to identify and address socio-psychological barriers on COVID-19 vaccine acceptance.

KEY WORDS: pandemic, vaccination, COVID-19, fear, anxiety, information fakes

Wiad Lek. 2022;75(9 p1):2126-2130

INTRODUCTION

The global pandemic COVID-19 has made significant adjustments in all areas of our lives. It has been the driving force in the process of social transformation and personality changes. It is a period of rethinking the usual considerations about approaches in the medical system, individual readiness and level of adaptation of the individual to these changes, focused care on mental and physical health.

On March 11, 2020, the World Health Organization (WHO) officially declared the COVID-19 pandemic, which led to the introduction of a number of quarantine measures, urban traffic restrictions, communication between cities and countries, mandatory self-isolation, social distance and other measures to prevent the SARS-CoV-2 virus spreading. The COVID-19 pandemic has become a real challenge with a different medical, social and economic consequences for society [1].

The main challenge faced by medical system: lack of human resources, specialists, financing, information preparedness, treatment protocols, regular replenishment of the material base. Today, each country already has experience of the first and next steps in the fight against the pandemic: developed treatment protocols, introduced additional sources of funding, if necessary, all health workers and students of medical institutions are engaged etc.

Leading research laboratories have developed vaccines against the SARS-CoV-2 virus and official vaccination of the population has begun. At this stage of the fight against

the COVID-19 pandemic, the country's medical system has encountered certain difficulties, namely vaccine hesitancy. It is caused by cases of health deterioration after vaccination, deliberate falsification of data on vaccines, and misinformation of the population about the vaccination process from various unofficial sources. Such socio-psychological attitudes of society emotionally characterize the COVID-19 pandemic and cause embarrassment, nervousness, anxiety, fear, apathy and other emotional reactions of the individual, which directly affect the decision to get vaccinated. In addition, the novelty and growing understanding of SARS-CoV-2 by science, the accelerated process of vaccine development and concerns about the safety and efficacy of future vaccines against COVID-19 have increased, including concerns about compromised safety standards of vaccine approval [2]. This complex context helps to explain the main reasons of vaccine hesitancy. Concerns about vaccine safety, side effects, and rapid vaccine development have been identified as barriers to vaccination [3]. With this in mind, future efforts to build a successful COVID-19 vaccination process should focus on preventing barriers linked with COVID-19.

A WHO behavioral survey conducted in March 2021 shows that the attitude of Ukrainians to vaccines has changed significantly since August 2020, 48% of respondents indicating readiness to take a vaccine if it becomes available [4]. However, the readiness of the Ukrainian population to be vaccinated against COVID-19 is still one

of the lowest compared with other European countries, as well as the United States and Canada. This social response is caused by certain socio-psychological barriers.

THE AIM

The aim of the article is to analyze the socio-psychological barriers to the COVID-19 vaccination process in the world and in Ukraine.

MATERIALS AND METHODS

Analysis of 18 literature sources that contain information about the socio-psychological barriers of the individual in the vaccination process at the level of international experience and in Ukraine, in the context of the COVID-19 pandemic. Analytical search for existing causes and global examples of their overcoming.

Search for literature sources was carried out in scientific databases: Scopus, PubMed, Web of Science. The review included original articles, research and official recommendations from leading world experts WHO, UNICEF, CDC.

REVIEW AND DISCUSSION

Exploring the psychological determinants of willingness to vaccine acceptance and understanding the socio-psychological barriers that arise in response to the importance of individual and collective protection is key to public health practice. Definitely, there are subjective decision factors for vaccination, so it is important to understand the main aspects that affect it. The study (Brewer N.T., Chapman G.B., Rothman A.J., Leask J., Kempe A.) [5] that contain a number of important propositions about the decision to vaccinate is quite illustrative in this regard. The first proposition is that thoughts and feelings can motivate getting vaccinated. Risk beliefs about infectious disease correlate reliably with getting vaccinated, low confidence in vaccine effectiveness and concern about safety correlate reliably with not getting vaccinated. The second proposition is that social processes can motivate getting vaccinated. For example, the dominance of social norms associated with altruism and understanding of the common good, protection and safety for oneself and others can affect intended behavior. The third proposition is that interventions can facilitate vaccination directly by reminders, prompts or reducing barriers (for example logistics and public protection, support). All of them contribute to the formation of individual behavior that is compatible with a positive attitude towards vaccination, such as certain social incentives, sanctions and requirements. It should be noted that researchers' attention to understanding the psychological mechanisms of vaccine acceptance or hesitance is under development, but preliminary results are already encouraging and can be taken into account in developing public health systems and policies that will facilitate COVID-19 vaccination.

The 5C model, which describes the main drivers of vaccine hesitancy is indicative in this context [6]. According to

the authors (Wiysonge CS, Ndwandwe D., Ryan J., Jaca A., Batouré O., Anya BM, Cooper S.) there are five main individual-level determinants of vaccine hesitancy: confidence, complacency, convenience (or constraints), risk calculation, and collective responsibility. Confidence denotes trust in the effectiveness and safety of vaccines, the system that administers vaccination, and the motivation of people who decide on the need for vaccination. Complacency occurs when the probable risk of disease is low and vaccination is not a necessary element of prevention. At the same time, constraints denote structural or psychological barriers of vaccination intentions and uptake of vaccination. Risk calculation indicates a deliberate comparison of the risks of infection and vaccination, from which to derive a decision. Therefore, higher risks related to vaccination than for the infection are observed. Collective responsibility refers to the willingness to protect others by one's own vaccination, through population immunity. However, a survey conducted in July–August 2020 shows that 36% of South Africans are reluctant to be vaccinated against COVID-19. This figure varies widely across countries in Africa, from 6% in Ethiopia to 41% in the Democratic Republic of Congo. The most frequently mentioned reason for not taking the COVID-19 vaccine was lack of confidence in the safety of the vaccines, followed by lack of confidence in the effectiveness of the vaccine. The authors emphasize that reluctance to accept vaccination is not limited to the risk of COVID-19 infection. There is an increasing number of people who are unwilling to take recommended vaccinations, a phenomenon referred to as vaccine hesitancy. Doubts regarding the importance and safety of vaccines among a part of the public have existed since the beginning of vaccination. The authors note that there is evidence to suggest that vaccine hesitancy trends have become more acute in recent years [6].

A study (Chou W.S. & Budenz A.) of the main causes of reluctance to getting vaccinated against COVID-19 among US population helped to identify the main drivers of vaccination resistance during the COVID-19 pandemic [7]. First of all, the emotionally charged nature of COVID-19, combined with the rhetoric against vaccination, that causes confusion, nervousness, apathy, and other emotions that influence vaccination decisions. It is significant that emotions influence the perception of vaccination risk more than threatening statistics on infections and deaths. At the same time, respondents noted certain barriers to vaccination, such as the safety of the vaccine, possible side effects after vaccination, and rapid development of the vaccine.

Another study by Rhodes M.E., Sundstrom B., Ritter E., McKeever B.W., McKeever R. deserves attention [8]. Research has focused on the attitude of parents to the vaccination of children aged 12 - 18 years. The study showed that there are two groups of parents: the first - less educated respondents indicated a general unwillingness to vaccinate their children when the COVID-19 vaccine becomes available. More educated parents were more likely to plan to vaccinate themselves and their children.

Growing skepticism and vaccine hesitancy affect COVID-19 vaccination campaigns around the world. An

online survey was conducted among parents in Naples, Italy in which was evaluated potential vaccine acceptability in relation to socio-demographic characteristics, perception of personal health and of the impact of COVID-19, and attitudes toward general vaccination practices. According to the study results almost 27% of participants declared they were in favor of vaccinations, and in fact real life vaccination rates in children exceeded the national mean. Vaccine refusal was attributed to safety concerns in 76% of parents. Specific vaccine attributes further reduced the acceptance rate. Female gender, younger age and lower education level were associated with non-adherence to vaccination. The rate of potential COVID-19 vaccine acceptability was very poor among parents. Vaccine hesitancy was mainly due to safety concerns. Demographic and educational factors were correlated to vaccine acceptability. The authors of the study (Fedele F., Aria M., Esposito V., Micillo M., Cecere G., Spano M., De Marco G.) conclude that health education and communication strategies are needed to achieve large-scale vaccine acceptability and herd immunity [9].

A study conducted in the UK also merited consideration. It aimed to identify negative attitudes towards vaccines and to identify the groups that are most reluctant to receive the COVID-19 vaccine [10]. Data received from 32 361 respondents identified four types of negative COVID-19 vaccine attitudes: mistrust of vaccine benefit, worries about unforeseen effects, concerns about commercial profiteering, and preference for natural immunity. The authors concluded that 16% of respondents showed high levels of mistrust about vaccines. Distrustful attitudes towards vaccination were higher among individuals from ethnic minority backgrounds, with lower levels of education, lower annual income, poor knowledge of COVID-19, and poor compliance with governmental guidelines. Overall, 14% of respondents reported unwillingness to receive a vaccine for COVID-19, whilst 23% were unsure. The largest predictors of both COVID-19 vaccine uncertainty and refusal were low-income groups (< £16,000, a year), having not received a flu vaccine last year, poor adherence to COVID-19 government guidelines, female living with children. Researchers have concluded that negative attitudes towards vaccines are a major public health concern in the UK. General mistrust in vaccines and concerns about future side effects in particular will be barriers to achieving population immunity to COVID-19 through vaccination. Vaccination promotion should be tailored to address these concerns and specifically to women, ethnic minorities, and people with lower levels of education and incomes.

Study conducted by scientists in Quebec (Canada) during the first and second waves of the pandemic (Dubé G., Dionne M., Pelletier S., Hamel D., Gadio S.) illustrate socio-psychological barriers regarding intention toward COVID-19 vaccination. Intention to be vaccinated against COVID-19 ranged from 76%-66% between the first and second waves. The proportion of undecided individuals remained stable - 12%. Being a man, being 60 years of age and over, having a university education level, having or living with someone with chronic medical conditions and

increased risk perceptions of COVID-19 were the strongest predictors of COVID-19 vaccine acceptance in multivariate analysis. It was reassuring to note that intention to be vaccinated is the highest among older age groups that are prioritized to be vaccinated first [11].

The results obtained in Pakistan on determining the factors that influence on decision on acceptance or hesitance of the COVID-19 vaccine merit attention. About 53% of the participants were planning to get vaccinated and a significantly greater proportion of better educated and higher income ($p < .05$). Most participants (52.3%) obtained the information regarding the COVID-19 vaccine from different mass media (52.3%) followed by social media (23.7%). The lack of knowledge, understanding, and perception of the risk, safety partly explains the low rate of vaccine acceptance in the Pakistan population. The data confirmed the propositions of other researchers about the need to implement a strategy to raise awareness of the vaccination benefits. A strategy to raise awareness of the benefits of vaccination should target individuals in the lower socioeconomic group and those with chronic disease [12].

A study on acceptability of COVID-19 vaccination in Saudi Arabia showed that approximately 64% show a desire to accept the vaccine while 18.3% were extremely hesitant to take the vaccine. It should be noted that factors which were associated with the acceptance toward the COVID-19 vaccine were the source of health information about COVID-19, perception toward whether the vaccine is effective on other variants of the virus, previous uptake of the influenza vaccine, and potential mandatory of vaccination in order to travel internationally [13].

Important results in understanding gender differences in the determinants willingness to get the COVID-19 vaccine among the working-age population in Japan. The percentage of those who were willing to get the COVID-19 vaccine was lower among women than among men (33.0% vs. 41.8%). Age and education level showed a gender gap regarding the association with willingness to get the COVID-19 vaccine: men who were older or had a higher level of education were more willing to get the vaccine, whereas women aged 30–49 years and those with a higher level of education showed a relatively low willingness to get the vaccine. For both men and women, marriage, higher annual household income, underlying disease, current smoking, vaccination for influenza during the current season, and fear of COVID-19 transmission were linked to a higher likelihood of being willing to get the COVID-19 vaccine [14].

An online survey (2 208 respondents) was conducted in Jordan in November 2020 to evaluate willingness to get the COVID-19 vaccine. Study participants were almost equally distributed between willingness, unwillingness and indecision to take the COVID-19 vaccine (30.4%, 36.4%, and 31.5%, respectively). Younger adults, males, and those who were not married, do not have children, have a bachelor or higher education, employees or being students, healthcare workers, and those who reported re-

ceiving flu vaccine had higher rates of COVID-19 vaccine acceptance compared to their counterparts ($p < 0.001$ for each category). COVID-19 risk perception, and perceived vaccine benefits, and barriers were significant predictors of intention to uptake the vaccine [15].

In Ukraine, according to a survey (March and May 2021) conducted by the Razumkov Center in March, 51,5% of Ukrainians surveyed did not intend to accept the vaccine [16], in May – 43,2% [17]. At the same time, the percentage of those who are going to uptake the vaccine in the near future has increased from 12.3% to 18.9%. Over 10% of Ukrainians plan to uptake the vaccine only, when necessary, for example, to travel internationally. At the same time, the number of people, who express willingness to be vaccinated free of charge increased to 58.8%. In March, this number decreased to 52%. The number of Ukrainians who are ready to pay for vaccine has grown slightly: 5,8% in May versus 5% in March. Within two months up to 14.6% increased a number of those who will not uptake the vaccine because they have had COVID-19. The number of those who will not be vaccinated due to the low probability of getting sick has increased from 3.4% to 7.5%. The number of those who have medical contraindications and those who believe that the risks of vaccination outweigh the risks of the disease had increased. But the level hesitancy towards vaccine decreased: in March, 45.2% of respondents, in May – 31.4%. These data correlate with the data obtained during the national survey conducted by the Kharkiv Institute for Social Research in December 2020 with the support of the International Renaissance Foundation [18]. Thus, changes in Ukrainians' attitudes towards COVID-19 vaccination tend to accept vaccination as a process of preventing the virus spreading and preserving their health. Maybe it is caused by the active start of vaccination or the appearance in the immediate environment of people who have been vaccinated and whose health has not deteriorated.

CONCLUSIONS

Although studies have been conducted in different countries with different sampling categories and at different time, certain trends that identify common socio-psychological barriers to COVID-19 vaccination can be outlined. There is no doubt that anxiety over the unintended consequences of vaccination can be considered the dominant barrier. The emotional nature of information about COVID-19, combined with the rhetoric of “anti-vaxxers”, causes confusion, nervousness, apathy and other emotions that affect a positive decision on COVID-19 vaccine acceptance. Excessive politicization of the vaccine development process has led to mistrust of vaccination among adults around the world, and the emergence of a wide range of fakes and false information about COVID-19 during the pandemic only provokes ambiguous and sometimes dangerous decisions for human health and safety. It has become clear that effective scientific strategy of health education and communication between representatives of the medical sphere and representatives of different social groups, gender and age are needed. But at

the moment it is difficult for the medical community and society to give an unambiguous assessment of the facts about COVID-19, because is still unknown about the long-term effect of COVID-19 on individual. To increase the uptake of a COVID-19 vaccine, vaccination evidence should be standardized and a choice of conditions, algorithm of beliefs instead of a standard approach should be proposed. Therefore, further health benefit studies are needed to detect and eliminate reluctance to uptake COVID-19 vaccine.

REFERENCES

1. World Health Organization. WHO Director-General's opening remarks at the media briefing on COVID-19 – 11 March 2020. Geneva, Switzerland: World Health Organization. 2020. <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020> [date access 21.07.2022]
2. Associated Press-University of Chicago National Opinion Research Center. Expectations for a COVID-19 Vaccine. 2020. <https://apnorc.org/projects/expectations-for-a-covid-19-vaccine/> [date access 21.07.2022]
3. Fisher K., Bloomstone B., Walder J. et al. Attitudes toward a potential SARS-CoV-2 vaccine: A survey of U.S. adults. *Annals of Internal Medicine*, M20-3569. 2020, 973 p. <https://www.acpjournals.org/doi/full/10.7326/M20-3569>. [date access 21.07.2022]
4. World Health Organization. WHO Behavioral observations (BI) for COVID-19 in Ukraine. 2021. <https://reports.unocha.org/uk/country/ukraine/card/1SPnZjxfF/> [date access 21.07.2022]
5. Brewer N.T., Chapman G.B., Rothman A.J. et al. Increasing Vaccination: Putting Psychological Science Into Action. *Psychol Sci Public Interest*. 2017; 18(3): 149-207. doi: 10.1177/1529100618760521.
6. Wiysonge C.S., Ndwandwe D., Ryan J. et al. Vaccine hesitancy in the era of COVID-19: could lessons from the past help in divining the future? 2021. doi: 10.1080/21645515.2021.1893062.
7. Chou W.S., Budenz A. Considering Emotion in COVID-19 Vaccine Communication: Addressing Vaccine Hesitancy and Fostering Vaccine Confidence. 2020, 1722 p. doi: 10.1080 / 10410236.2020.1838096.
8. Rhodes M.E., Sundstrom B., Ritter E. et al. Preparing for A COVID-19 Vaccine: A Mixed Methods Study of Vaccine Hesitant. 2021, 837 p. doi: 10.1080 / 10810730.2021.1871986.
9. Fedele F., Aria M., Esposito V. et al. COVID-19 vaccine hesitancy: a survey in a population highly compliant to common vaccinations. 2021, 3354 p. doi: 10.1080/21645515.2021.1928460.
10. Paul E., Steptoe A., Fancourt D. Attitudes towards vaccines and intention to vaccinate against COVID-19: Implications for public health communications. 2021;1:100012. doi: 10.1016/j.lanepi.2020.100012.
11. Dubé É., Dionne M., Pelletier C. et al. COVID-19 vaccination attitudes and intention among Quebecers during the first and second waves of the pandemic: findings from repeated cross-sectional surveys. *Human Vaccines & Immunotherapeutics*. 2021. doi: 10.1080/21645515.2021.1947096.
12. Chaudhary F.A., Ahmad B., Khalid M.D. et al. Factors influencing COVID-19 vaccine hesitancy and acceptance among the Pakistani population. *Human Vaccines & Immunotherapeutics*. 2021, 3370 p. doi: 10.1080/21645515.2021.1944743.
13. Alshahrani S.M., Dehom S., Almutairi D. et al. Acceptability of COVID-19 vaccination in Saudi Arabia: A cross-sectional study using a web-based survey. *Human Vaccines & Immunotherapeutics*. 2021, 3347 p. doi: 10.1080/21645515.2021.1936869.

14. Ishimaru T., Okawara M., Ando H. et al. CORoNaWork Project. Gender differences in the determinants of willingness to get the COVID-19 vaccine among the working-age population in Japan, *Human Vaccines & Immunotherapeutics*. 2021. doi: 10.1080/21645515.2021.1947098.
15. Al-Mistarehi A.H., Kheirallah K.A., Yassin A. et al. Determinants of the willingness of the general population to get vaccinated against COVID-19 in a developing country. *Clinical and Experimental Vaccine Research*. 2021; 10(2): 171-182. doi:10.7774/cevr.2021.10.2.171.
16. Attitudes of Ukrainian citizens to vaccination against COVID-19. March 2021. Kyiv, Ukraine. <https://razumkov.org.ua/napriamky/sotsiologichni-doslidzhennia/stavlennia-gromadian-ukrainy-do-vaktsynatsii-vid-covid19-berezen-2021r> [date access 21.07.2022]
17. Attitudes of Ukrainian citizens to vaccination against COVID-19. May 2021. Razumkov centre. Kyiv, Ukraine. <https://razumkov.org.ua/napriamky/sotsiologichni-doslidzhennia/stavlennia-gromadian-ukrainy-do-vaktsynatsii-vid-covid19-traven-2021r> [date access 21.07.2022]
18. Kobzin D., Shcherban S. Perception of pandemic covid-19 and vaccination: survey results. Kharkiv Institute for Social Research. 2021. <https://khisr.kharkov.ua/wp-content/uploads/2021/02/COVIDVaccination-2020.pdf> [date access 21.07.2022]

The studies were carried out as part of the planned research work «Psychology of constructive behavior of the individual in the transformations of social relations», (Minutes of the meeting of the Academic Council of the Human Institute Borys Grinchenko Kyiv University № 7 of June 1, 2021). The study has no external funding.

ORCID and contributionship:

Viktoriia V. Furman: 0000-0001-9733-0791 ^{A, B, D, F}

Olena M. Reva: 0000-0002-6712-6666 ^{A, B, D, F}

Tetiana P. Tsiuman: 0000-0002-2363-938X ^{A, B, D, F}

Iryna A. Lukianenko: 0000-0003-4011-673X ^{A, B, D}

Conflict of interest:

The Authors declare no conflict of interest.

CORRESPONDING AUTHOR

Viktoriia V. Furman

Institute of Human Sciences Boris Grinchenko Kyiv University

18/2 I. Shamo Blvd, 01601 Kyiv, Ukraine

tel: +380937640280

e-mail: v.furman@kubg.edu.ua

Received: 22.09.2021

Accepted: 29.06.2022

A – Work concept and design, **B** – Data collection and analysis, **C** – Responsibility for statistical analysis,

D – Writing the article, **E** – Critical review, **F** – Final approval of the article