

Knowledge, opinions and attitudes of the general population in the Republic of N. Macedonia about vaccines and vaccination

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Introduction

Immunization is one of most important human civilization achievements. It saves millions of lives each year. Since vaccine discovery, more than 200 years ago, they have one of central roles in reducing mortality and improving life quality thus substantially contributing to public health. Over the last decades, billions of people have been safely receiving vaccines to prevent serious infections. High rates of vaccination worldwide are required to establish a herd immunity and stop the spread of diseases. Thanks to vaccines in 1979 smallpox became first human infectious disease that was eradicated, while today polio is near its' global eradication with small number of cases reported only in Afganistan and Pakistan. Actually, vaccines are so efficacious that some serious infections today are very rare and some people do not understand the benefits of it (UNICEF, 2017).

During the past century, an attention has been paid to the behavior of the general population towards immunization which today is becoming more and more concerning. Main barriers are lack of appropriate and accurate information related to vaccine efficacy and safety, side effects, "conspiracy theory" beliefs, vaccine hesitancy etc. Actually, vaccine hesitancy is one of major barriers in achieving herd immunity across different populations. Since the COVID-19 pandemic appeared, people seem to be suspicious in the healthcare providers and the medications, even those that are years, even decades on the market and for which there are solid proofs regarding their safety and efficacy (Polla et al, 2020, Randall et al, 2006, Scarpitta et al., 2019)

The aim of the present study was to get insight into the knowledge, opinions and attitudes of the general population in the RN Macedonia regarding vaccines and vaccination.

Materials and methods

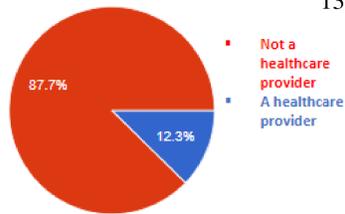
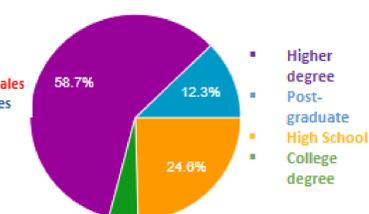
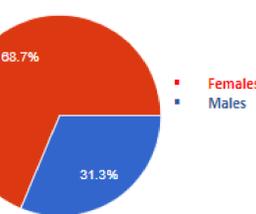
Focus methodology group approach was applied for design and structuring of the questionnaire. Clarity, complexity and understanding of the questions was tested on 14 random respondents.

An on-line based survey was conducted between March 23rd and May 21st, 2022. The anonymous survey consisted of 32 questions which covered (1) data related to socio-demographic factors (sex, age, education and employment status), (2) the health status of the individual which might affect their decision whether to or not get vaccinated and (3) general and scientific questions regarding vaccines and vaccination.

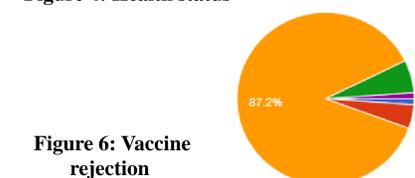
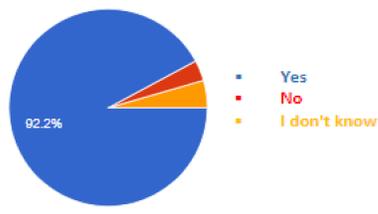
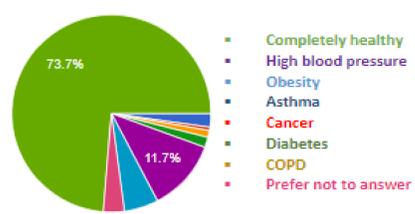
Obtained data were tabulated using Microsoft Excel® (Microsoft Corp. Redmond, WA, USA) and were computed and consequently evaluated using statistical software STATGRAPHICS Centurion XVI evaluation (StatPoint technologies Inc., USA).

Results and discussion

According to the obtained results from the questionnaire, 179 participants from both sexes participated (68.7% women and 31.3% men) with average age of 39.89 ± 11.08 years with most of them having a higher educational degree (58.7%). 87.7% of the participants were not a healthcare-providing individuals which gives us good insight regarding general population knowledge, opinion and attitudes about vaccines and vaccination (Fig. 1-3).



Based on their health status, 73.7% declared that they are completely healthy, while 11.7% said that they have hypertension and 3.4% decided not to answer. Regarding the required vaccines from the regular vaccination calendar, 92.2% of the participants answered that they obtained every vaccine. 87.2% answered that they haven't rejected a vaccine in their lifetime, 5.58% are not sure, while 6.14% rejected a vaccine for their child, and the rest preferred not to answer. Mostly the reason behind the rejection of getting vaccinated were the side-effects that vaccines cause (40%) (Fig. 4-6).



79.3% of the participants share the opinion that vaccination can prevent serious forms of certain infectious diseases. Approximately 60% of the participants envisage that the natural immunity is better than the acquired one. If they could chose which vaccine to get vaccinated with, 76.5% stated that it would be the classic vaccine based on whole inactivated or attenuated virus indicating that people do not accept easy new vaccines even if they are safer and produce stronger immune response. This might be attributed to the lack of knowledge related to the newer types of vaccines

In particular, on the question regarding the types of vaccines, 110 participants (61.5%) stated that they are not familiar with any type of an existing vaccine at all, while 28.5% were familiar with the RNA vaccines and least (11.7%) with the non-replicating viral vectors. 68.2% agreed that the classic vaccines based on the live attenuated viruses are the most effective and provide a long-lasting immunity (Fig. 7-9).

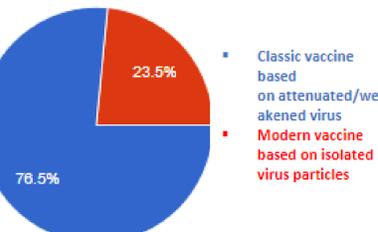
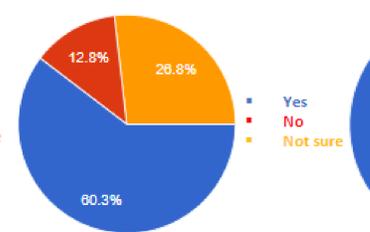
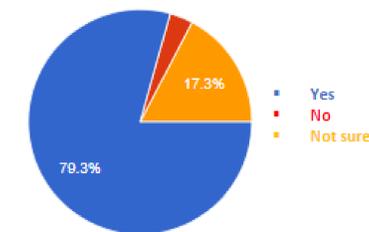


Figure 7: Opinions regarding disease prevention with vaccines

Figure 8: Natural vs. Acquired immunity

Figure 9: Vaccine preference

Regarding the clinical trials more than 80% answered that either time interval or number of participants are important for safety and efficacy evaluation, while 70.9% stated that both the time interval and number of participants in the clinical trials are equally important. Only 7.8% would accept to be part of the clinical trials, while 69.8% stated no. Past years the conspiracy theories are all over media proclaiming that "vaccines will make more harm than benefits". 81 participant (45.3%) disagree with this statement, while only 3.9% completely agree. 21.8% said that they somewhat agree, while 25.1% don't share an opinion. In that direction were the results related to the belief that "vaccines cause autism" where only 33% do not agree, 44.7% do not have opinion, 15.1% partially agreed and 7.3% strongly agreed and agreed with this belief (Fig. 10-11).

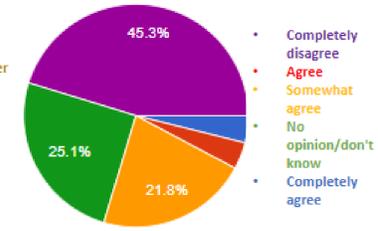
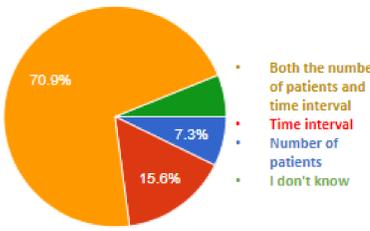
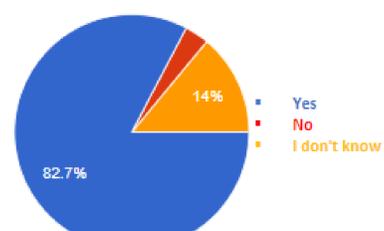


Figure 10: Parameters important for clinical trials (time interval, number of patients)

Figure 11: Conspiracy theories

When it comes to COVID-19 vaccination 76% answered that they were fully vaccinated, where 42.5% were vaccinated with Pfizer/Biontech mRNA, followed by Sinovac/Sinopharm (27.9%). Most of the vaccinated participants (61.5%) didn't have the option to choose which vaccine to receive. 18.4% did not receive any vaccine. The most common reason why the individual didn't get vaccinated was the possibility of getting infected either way (18.4%), short time for vaccine development (15.1%), small number of people enrolled during clinical testing (12.3%), concerns about vaccines' safety, possible long term side effects (11.7%) and disbelief in vaccine efficacy in general (10.1%). Near half of the respondents (51.4%) express opinion that the vaccine against COVID-19 shouldn't be obligatory (Fig. 12-13).

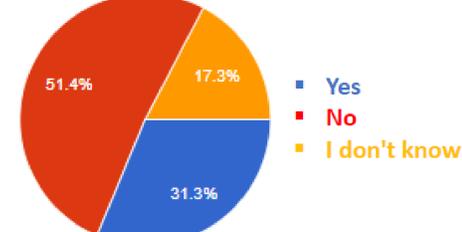
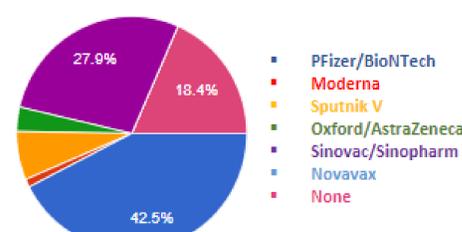


Figure 12: COVID-19 vaccine preference

Figure 13: Mandatory COVID-19 vaccination

Conclusion

The results from survey identified opinion and attitudes, as well as knowledge gaps of general population in RN Macedonia about vaccines and vaccination. These results should be used to tailor appropriate public education activities in order to increase general public awareness about immunization significance for personal and public health improvement.

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