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Department of Physical Education and Sport Sciences

"Vaccination in athletes during the Covid-19 crisis: A qualitative approach"

By

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Eva Baramcheva

Abstract

The aim of the study is to understand the psychological impact of the COVID vaccination on professional athletes. The rapid intervention of medical and technological science has contributed to the discovery and modification of several types of vaccines against COVID 19. The speed of this process has caused a public dilemma about the safety of vaccines. This issue is the main motive in the paper regarding the views of professional athletes who are particularly concerned about this aspect. The paper conducts a phenomenological analysis based on interviews with two groups of professional athletes - those who have been vaccinated and those who refused to vaccinate. This analysis was structured around three themes: the psychological state caused by COVID-19, the changed dynamics of sports activities, and the dilemma caused by the vaccination against COVID-19. It was clear that athletes faced fear, disbelief and expectation for a quick end to this crisis. However, the greatest attention in this study is devoted to the vaccination against COVID-19. Their views on vaccination were diametrically different. But from the analysis, it was seen that both groups do not have enough knowledge and facts about whether there is and what consequences this type of vaccine could possibly have. In conclusion, athletes must be more informed from the right sources about vaccination, and sould have an open mind and trust in science in the 21st century about vaccination.

Keywords: COVID 19, phenomenological approach, vaccination, professional athletes

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Introduction

In December 2019, a new respiratory virus known as the Coronavirus 2 (SARS-CoV2), spread rapidly and soon after, a pandemic was declared and made humanity accustomed to a new a way of life without close contacts and restrictions of unprecedented proportions. Efforts to develop, evaluate the safety and efficacy of SARS-CoV-2 vaccines were conducted in an accelerated manner, in phase 1, phase 2, and phase 3 testing at an unprecedented rate. Vaccines against COVID 19 have been identified as safe and highly effective in clinical trials, and approval for emergency use by the Food and Drug Administration (FDA) and (EUA) was granted in late 2020 (FDA, 2020). COVID vaccines were developed using several different technologies, including the novel use of RNA (mRNA). COVID vaccines currently in use under the FDA EUA in the United States include mRNA and replication-defective viral vector vaccines, with protein subunit and live-attenuated vaccines still in preclinical development or clinical trials (Martin et al., 2008).

One year after the start of vaccination and billions of doses administered worldwide, COVID 19 vaccines have proven to be safe and effective (CDC, 2022). The coronavirus pandemic was unexpected, a transition that affected everyone including sports organizations, institutions, athletes and their loved ones.

Annually, thousands of athletes receive flu vaccination, and the discussion of the risks and benefits of vaccination in this community has long been debated as there are studies that assess the pros and cons of flu shots (Davies, 2020). According to Mahase (2020), studies in the general population have shown increased rates of vaccine efficacy, with increased antibody titers, especially in individuals who exercised moderately before vaccination. How to effectively

manage sports participation in the pandemic is a challenge for the sports medicine community. The first organization to publicly support athlete vaccination was the American Medical Association for Sports Medicine (AMSSM, 2021) with a recommendation to all athletes to receive the vaccine regardless of the –manufacturer and thus to protect themselves and the people around them and thus contribute to fasten the end of this pandemic.

The dilemma that has arisen is not only a dilemma for athletes and sports workers, but also for the general population at the level of vaccine safety and their effect after application. However, the effects of COVID-19 vaccination in the general population provide reassurance about the overall rate of side effects, and that severe systemic effects have been reported in only 1-3% of individuals. These are preliminary results, but today, according to WHO statistics, more than 12 billion doses have been administered in around 184 countries (WHO, 2022).

Athletes are advised to receive all necessary vaccines before the competition due to the increased risks of viral exposure. According to Stenger (2020), a recent study in elite German athletes found that a four-valent inactivated influenza vaccine elicited a strong immune response with no reported side effects or loss of training. However, due to recent (albeit mostly anecdotal) reports of adverse symptoms associated with COVID-19 vaccines, there is growing concern and dilemma among the sports community that vaccination may impair sports performance. This is mostly due to the non-compliance of elite athletes with vaccination recommendations, mainly based on concerns about side effects and possible poor efficacy of the vaccine due to continuous physical activity (Batatinha et al. 2022). Although many studies show the opposite, as the study by Hallam et al (2022) state that exercise did not increase side effects after the COVID-19 vaccination.

This is the case with the study "Elite athletes on regular training show more pronounced induction of vaccine-specific T-cells and antibodies after tetravalent influenza vaccination than controls" by the authors indicate that lymphocyte subpopulations and vaccine-specific T cells were quantified and functionally characterized by 45 athletes and 25 controls before, and 1, 2 and 26 weeks after vaccination. In addition, influenza-specific antibodies and their neutralizing function were quantified. This means that the flu antibodies in the athletes were present differently in relation to the time frame, even though the same vaccine was used in all the athletes. (Ledo et al., 2020).

Today, after 2 years and a half of applying the vaccine against COVID 19, many countries announce vaccination as a mandatory requirement to enter their country, the foreigners who enter must be vaccinated as a condition. Thus, many top sports events allow participation only to vaccinated competitors.

The purpose of this study is to examine the attitude of athletes regarding the vaccination against coronavirus COVID 19. Given the dilemma and controversy surrounding this vaccination, athletes are people who are particularly affected by the crisis with COVID 19 and the restrictions imposed by this pandemic in terms of their trainings, official and unofficial competitions. Interviews with athletes who were split into two groups are included in the analysis below. Group 1 includes 5 athletes who have been vaccinated against COVID 19 and a group 2 includes 5 athletes who refuse vaccination as a way to deal with the crisis and restrictions. From their statements should be obtained a picture of what are the correct opinions of these people who are leaders in the fight for a healthy lifestyle and practice sports as their own way of life and professional choice. On the other hand, from their answers it can be observed why they do not vaccinate in order to develop specific strategies to convince them.

Literature review

COVID 19 as a phenomenon of today

The COVID 19 coronavirus pandemic hit the nations of the world in the first five months of 2020 and changed the pace, structure and nature of our lives in an unusual way. The speed with which this disease has spread globally is a phenomenon of today that has shown how vulnerable man is, but also humans as species. According to Parisi (2013), there are many possible definitions of the term phenomenon. A phenomenon is a complex system and crucially depends on the details of the system. This dependence is often very difficult to understand. In other words, the behavior of the phenomenon (for example, the coronavirus COVID-19) can be extremely sensitive to details that lead to large variations in the behavior of the phenomenon itself (Kumar et al., 2020). COVID-19 is a complex phenomenon like all natural phenomena: biological, sociological, psychological, economic, political and all others because in their natural state they are complex. This phenomenon appeared suddenly and showed that a civilization that was considered to be highly developed is not ready to deal with this type of unforeseen situation. (Gupta, 2021). The World Health Organization (WHO) officially declared the emergence of SARS-COV-2 as a threat to public health internationally on January 30, 2020, on March 11, 2020 this concern turned into a global pandemic. The inability to anticipate the COVID 19 phenomenon and the dangers it brings, has shown that this virus poses a real danger to humans and their survival. The WHO has called on countries to adopt restrictive measures up to quarantine measures to avoid the spread of the virus and to protect public health (WHO, 2020). Despite rapid international efforts to prevent its spread, SARS-COV2 has spread to 213 countries, resulting in more than 500 million cases and 6 million deaths since its initial and formal identification in Wuhan, PRC in December 2019 to date (Worldometers.info, 2022).

Although the phenomenon itself is unpredictable, the COVID 19 phenomenon had some announcements of its own. At first there was the SARS outbreak in 2003, H1N1 pandemic influenza in 2009, MERS coronavirus in 2011, Ebola in 2014−16; mosquito-borne Zika in 2016. However, despite the appeals of many scientists including NIAID Director Anthony Fauci and certain politicians like Obama in 2015, possible pandemic cases were ignored and remained unheard (Ciulla, 2020).

Emergence of the pandemic

In the first half of 2020, the world was hit by a pandemic crisis as a result of a new coronavirus, after which the very name of the crisis was named as Coronavirus Disease-19 or COVID 19. COVID-19 was first identified in the city of Wuhan which is located in China, one of the largest and most densely populated countries in the world. It is a disease caused by the SARS-CoV-2 virus that attacks the respiratory system.

The virus quickly spread around the world and resulted in great human losses and economic damage. This mysterious virus that suddenly hit the whole world resulted in the declaration of a global pandemic by the World Health Organization.

The first case of COVID19 appeared on 31.12.2019 and was reported by China to the WHO (WORLD HEALTH ORANIZATION) as a case of an unknown type of pneumonia. As of January 3, 2020, there were 44 new cases of the new type of pneumonia, while on January 7, the Chinese authorities announced that they were facing a new virus originating from the seafood market in the city of Wuhan (Kumar, et al., 2020). The reason for this claim is justified by the fact that out of the first 41 infected cases, 70% were owners of stalls, employees or regular

customers in the Juan market where, in addition to seafood, live animals were illegally sold and killed in front of customers (Boseley, 2020). However, experts doubt this theory because the first case had nothing to do with the place itself.

According to the World Health Organization (2020) the Covid-19 virus is spread through droplets of saliva when an infected person coughs, sneezes or talks, which is why it is important to take steps to prevent the spread. The riskiest categories are the elderly and those with medical problems such as: cardiovascular disease, diabetes, chronic diseases, chronic respiratory diseases, cancer and the like (WHO, 2022).

The rapid and relatively easy spread of the virus is the reason why in the first three months of 2020, the coronavirus case developed into a global pandemic. The result was a closure of schools and universities for more than one billion students of all ages. In addition, more than half of the world's population was affected by strong measures to restrict movement and normal functioning, which is the first time in history that such measures have been applied on such a large scale in the same period.

It can be said that the emergence of the pandemic crisis caught all countries unprepared for economic, operational and health impact simultaneously, so in the first moments the most important thing was to achieve organizational coordination between institutions nationally and then globally. Today, more than two years since the first recorded case it is safe to assume that the Covid-19 pandemic affected every sector in the world, including the sports industry and athletes in particular.

Vaccination as only solution to the Covid-19 pandemic

A vaccine is a type of biological preparation that enables the creation of active acquired immunity to a certain infectious disease and thus helps to create resistance to that disease. The purpose of all vaccines is to stimulate the immune system to respond better and more strongly when it comes in contact with some of the pathogens for which we have been vaccinated. Drug regulatory agencies are currently analyzing evidence for the quality, safety and efficacy of different types of vaccines, one of them being a vaccine for Covid-19 as well. However, the aspect that separates the vaccine against Covid-19 from the other vaccines is the period of which the vaccine has been developed and tested in human clinical trials. According to Craven et al. (2021) the reason behind such successful and record-braking time in developing and producing vaccines is seen in the partnership between the public and private sector "The clearest example has been the successful vaccine development of Operation Warp Speed10 —the collaboration between the federal government and the pharmaceutical industry on SARS-CoV-2 vaccine development".

In fact, figure 1 portrays the time difference in producing the Covid-19 vaccine and other vaccines such as for Ebola, HPV and etc.

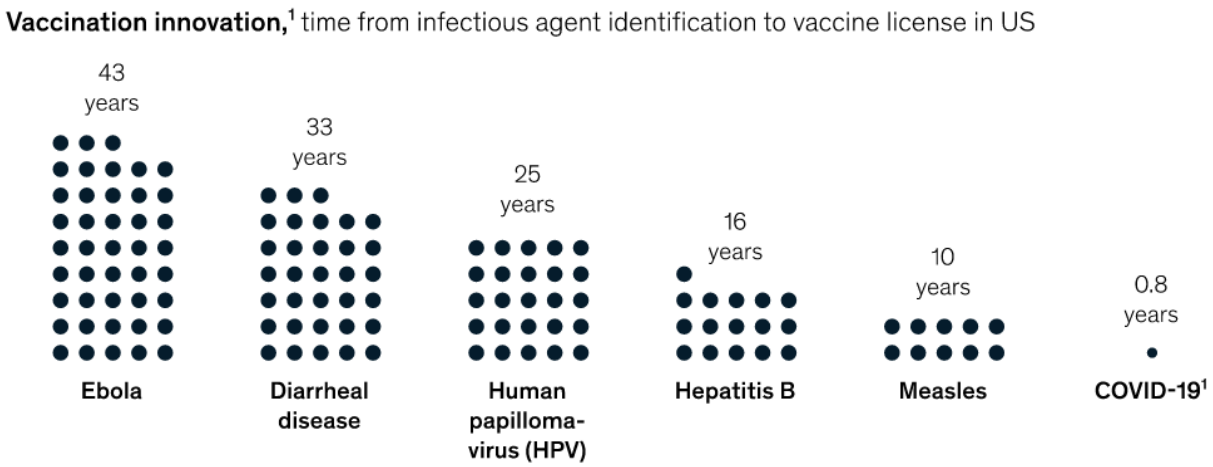


Figure 1 Time difference in producing the Covid-19 vaccine and other vaccines

Immunization as a process is successful in the field of health care because it saves millions of lives every year. To date, developed vaccines can prevent more than twenty life-threatening diseases and help people of all ages live longer and better lives. It is a long process from research to vaccine development, lasting from 5 to 10 years. However, it is humanity that is facing another phenomenon, and that is the forced step to find a vaccine in a very short time. A study that appeared in Nature MedicineTrusted Source in October 2020 surveyed 19 countries to investigate the acceptance of COVID-19 vaccines. The researchers found that only 71.5% of respondents would consider taking a COVID-19 vaccine and that only 48.1% would take it if their employer recommended it (Moriera, 2021). However, as emphasized in the research of Dr. Eric J. Yager, an associate professor of microbiology at Albany College of Pharmacy and Health Sciences in Albany, NY, told MNT that scientists have been studying coronaviruses for more than 50 years. This meant that scientists had existing data on the structure, genome, and life cycle of this type of virus (Moriera, 2021).

The process of developing vaccines against COVID-19 has been significantly shortened with the help of modern technologies and platforms for development of candidate vaccines and rapid approval of clinical trials by regulatory agencies. However, the length of clinical trials that follow has limited the rate of vaccine development. In order to speed up the pandemic data collection process, to innovate data collection methods and to shorten vaccine approval times, clinical trials are being conducted in parallel (Phase I-II). Some researchers have begun collecting efficacy data since Phase II. If the ethical dilemmas of overlapping clinical trials for COVID-19 were accepted, data on the effectiveness of the Covid-19 vaccine were available in a short time. With the final approval of the vaccine and the assurance that it is immunogenic, effective and safe (phase III), vaccination has proven to be the only cure for the COVID 19 pandemic.

According to the latest statistics provided by the WHO, 63.4% of the total world population have been fully vaccinated so far, ie with two doses, and about 22.3% have received a third booster dose, According to WHO statistics (2022), some countries of the European Union have exceeded the world average in terms of vaccinated population. Thus, Germany is with 76.3%, Austria with 76.6% and Greece with 71.2% of the population. Unlike European countries, in North Macedonia this percentage is also very low, only 40.3%. (WHO, 2022).

But the main question that is still being followed around the world by the public is the dilemma of how safe vaccination is, despite the fact that most scientists, biologists and geneticists are convinced of the safety of the process. This is mostly due to the lack of information, the moral aspect regarding vaccines and the effect that the vaccine will have on the human body.

Even before the outbreak of the COVID-19 pandemic, laboratories around the world and pharmaceutical companies were studying ways to produce vaccines that could quickly adapt to new strains of viruses that could cause a pandemic. These findings also enabled the rapid development of a vaccine for COVID-19 whose effectiveness could then be tested in humans. Thanks to advances in technology, today it is easier to isolate the virus and sequence it, or determine its genetic code. It made COVID-19 the first outbreak to be tracked in near real-time on a global scale (World Health Organization 2021).

Regulatory agencies, such as the European Medicines Agency (EMA) and the US Food and Drug Administration (FDA), obtain evidence from pharmaceutical companies from laboratory and human research, which experts assess and decide on whether a drug or vaccine will be approved for marketing. To prove the safety and effectiveness of drugs and vaccines for humans, it is necessary to conduct research called clinical trials. The highest level of such trials are randomized controlled trials, in which subjects are randomly assigned to two or more groups, one group receives the intervention under study, and the other group receives a placebo, or some active therapy, usual care or - nothing. These groups are monitored for some time, predetermined parameters are analyzed and then which group has better results is compared. All efficacy and safety data from such studies shall be submitted to regulatory agencies for evaluation. However, the evaluation of drugs and vaccines does not end there.

Because some side effects may be rare, worldwide collaboration is needed to analyze side effects when it comes to drug and vaccine safety. In 1968, the World Health Organization established a research pilot project for international drug surveillance, the aim of this project was to develop an internationally applicable system for detecting previously unknown or unclear adverse effects of drugs (Edwards & Olssson, 2002). This system was developed and is still

active today. Under this international system, Member States allow spontaneous reporting of adverse reactions; information on side effects is sent to the electronic database VigiBase in the international headquarters located in Uppsala, Sweden. By analyzing data on side effects from around the world, signals about drug-related problems can be identified early on. Regulatory agencies are constantly monitoring the safety of medicines and responding to this information.

In the case of public health emergencies such as the COVID-19 pandemic, drug regulatory agencies offer the possibility of a "rolling review" of data on a drug or vaccine that is being developed. This means that the evidence is gradually analyzed as it becomes available. Otherwise, it is common to wait for all the necessary research to be completed and to provide the regulatory agencies with complete data from all the research done. Gradual assessment allows regulators to make decisions faster.

The impact of COVID 19 on sports and athletes

The outbreak of the COVID-19 pandemic hit the whole world in a sudden and dramatic way with an unprecedented impact on the health and daily life of the citizens. The sports sector, including those who have dedicated their lives to improving their health through physical activity, was deeply concerned about the well-being of people affected by the pandemic. The measures taken by the WHO that aim at reducing the spread of the virus, affect professional athletes in many areas of their lives. Long quarantines and the inability to exercise for athletes was an unexpected blow, especially given their lifestyle and the overall mental and physical structure of an athlete (Toresdahl & Asif, 2019). Global health recommendations have led to the cancellation and postponement of numerous sporting events in order to achieve physical and

social distance and in an effort to limit the spread of the virus. International sporting events, such as the Olympics, the European Football Championship, and numerous sporting events, have either been postponed or canceled. Samuel et al. (2020) notes that due to the new pandemic norms, athletes in particular have undergone significant lifestyle changes, interpersonal relationships, financial challenges (e.g., job loss or sponsorship), but most of all, loss of goals and satisfaction.

The International Society of Sport Psychology (ISSP) has taken into account the overall situation with the implications of COVID 19 and will soon publish three editorials and commentaries on the effect of the coronavirus pandemic on athletes on complexity and suggestions for working with athletes, sports psychology services and tips for athletes, coaches, parents and the sports community (Henriksen, 2020).

Exercise restrictions, the inability to participate in competitions, have proven to be a challenge for athletes and sports workers given that it affects their health with a lack of training and their income as competitions are canceled. The fear of contracting the virus in athletes caused stress and negative effects on the mental health of athletes during this pandemic. Differences in dealing with such stress and fear are what differentiate athletes according to their mental structure. As Clifford and Adewunmi (2021) explained, some athletes may be able to find successful coping mechanisms, but some athletes may be more pessimistic in response during the uncertain period of the global pandemic we face. Although anxiety is a natural response to a crisis, it is clear that in COVID 19 and its global effects, stressors can be particularly detrimental to professional athletes and their physical and mental health.

One of the most important aspects is that athletes who do not train due to lockdowns and quarantines during the pandemic face the possibility that it may all have a negative effect on their

sports skills and performance. Because high levels of stress can have a detrimental effect on daily life and mental and physical health, there is a need to examine and diagnose the psychological problems and deteriorating mental health of professional athletes during the COVID-19 pandemic.

Although professional athletes are considered individuals in good health, the phenomenon of the virus and its variations have shown that these people can be infected with the same severity as other people. During these years of pandemic, many athletes became infected with the virus and had a different picture in terms of sleep and postoperative condition. Given that COVID 19 attacks the whole organism and is particularly prone to the weaknesses of the organism, the athletes also faced various post-equestrian effects such as changes in the respiratory, cardiovascular system, poor concentration and motor system. According to Nagal (2020), in a study of 26 athletes who tested positive for COVID-19, 12 showed mild symptoms and 14 were asymptomatic. None of the participants needed hospitalization due to the symptoms of COVID-19. Of the participants, after transfusion, myocarditis was observed in 15% of the sample, and an additional 31% showed fibrosis of the heart tissue.

Today, after a whole year of applying the vaccine against COVID 19, many countries announce vaccination as mandatory in their country, i.e. foreigners who enter must be vaccinated as a condition. Thus, many top sports events allow participation only to vaccinated competitors.

Metabolic and physiological change

In order to alleviate or confirm concerns about the potential adverse effects of COVID-19 vaccination on athletic performance, there is a critical need to determine whether recent COVID-19 vaccination is affecting physiological responses to varying intensity of exercise. According to one study, COVID-19 vaccination showed no adverse effects on metabolic and physiological markers in cyclists treated as physically active healthy individuals (Gasibat, 2021). Only in a certain group of athletes did indications of cardiovascular and neuroendocrine response to vigorous exercise appear that were observed after vaccination of elite athletes (Singh et al., 2021).

Sports training and immunity

Physical activity promotes a strong immune system and better responses to vaccines. Accelerometer data from a Singapore study were collected from elderly Chinese women in Singapore. In another study, athletes were found to have increased antibodies after vaccination. If regular exercise is done after vaccination, then increased protection is considered to be continued. Researchers have found that "acute attacks" of exercise, such as pre-vaccination exercise, can accelerate better immune system function. The study found that regular exercise and vaccination were important factors in developing the body's response to the virus. Regular training has shown the benefits of the vaccine in response to the immune system. This has been especially shown in the production of antibodies in female athletes and improves the cell-mediated response in male athletes. This also applies to other people who are physically active. According to a Lancet study in February, people who engage in "moderate-intensity exercise before vaccination" have higher efficacy rates and more antibodies than the COVID-19 vaccine (Hull et al., 2021).

However, the evidence was never completely convincing because other studies found no noticeable difference. Although there is no medically convincing theory about how exercise and vaccination correspond to each other, it is clear from the above that vaccination does not have a negative effect on athletes in relation to their regular training.

Methodology

This chapter will discuss the methodology used in this paper, as well as a prolonged description of the methodology for the chosen target population. The procedure of gathering data will also be explained along with the procedures for analysis and presentation of research data. At the end of the chapter the conclusions of the study will be discussed.

Phenomenological based interviewing

Phenomenology is a qualitative research approach that aims to describe the essence of a phenomenon by investigating it from the point of view of those who have experienced it. It actually represents a methodology for studying a particular life experience of an individual, which implies that individuals have these experiences (Van Manen, 2016).

Seidman (1998) discusses that an in-depth interview is a way for the researcher to understand the participants' attitudes, giving context to their behaviors and actions. When participants describe behavior, the researcher can then put that behavior into context thus creating an understanding of the participant's activities from the information obtained through the interview. This methodology allows participants, as co-directors of the research, to discover new questions from their stories about their daily life activities. The choice for this method was made due to the possibility of sharing the experiences of individuals who are directly affected by the topic of the paper.

Participants

The present study includes 10 professional athletes (age 18-30), of which 5 will be vaccinated and 5 unvaccinated. A purposive sampling was used in choosing the interviewees. In relation to these groups, both male and female athletes were asked to participate in order to obtain different opinions and structure of the interview. The method was chosen so that the research could obtain significant data on the experience of athletes in relation to COVID 19 vaccination. The data provided information on the fear and real need of athletes for vaccination in the fight against coronavirus and return to normal life, which is necessary for athletes to be able to continue their lives both professionally and personally. The sample of ten participants is made to have a proportional representation of nationalities, taking into account the structure of the population in North Macedonia.

The study conducted as part of this paper followed the design of a qualitative study where in-depth-interview was conducted. In total, 10 athletes were interviewed by using semi-structured questionnaire consisting of 10 questions. The first three questions were demographic questions intended to gather more information in regard of the age, gender and ethnic diversity of the participants.

The participants of the study were 10 professional athletes who actively compete in the sport of swimming. The athletes were identified with the help of the Swimming Federation of North Macedonia. Their demographic characteristics will be discussed below. Participants in this research were interviewed between April 15 and May 05, 2022. These are professional swimmers who, according to their age, belong to the group of active swimmers and have experience in professional swimming competitions such as summer and winter state championship, international swimming competitons “Skopje Open”, “Beta Sharks”, “11-th

April" held in Belgrade, "Zrnjanin Cup Grand Prix" competition held in Zrnjanin. In regard of the age of the athletes, 9 of them fall under the category of young people[1], i.e. they are aged between 18 and 26 years of age, while 1 athlete is aged 30.

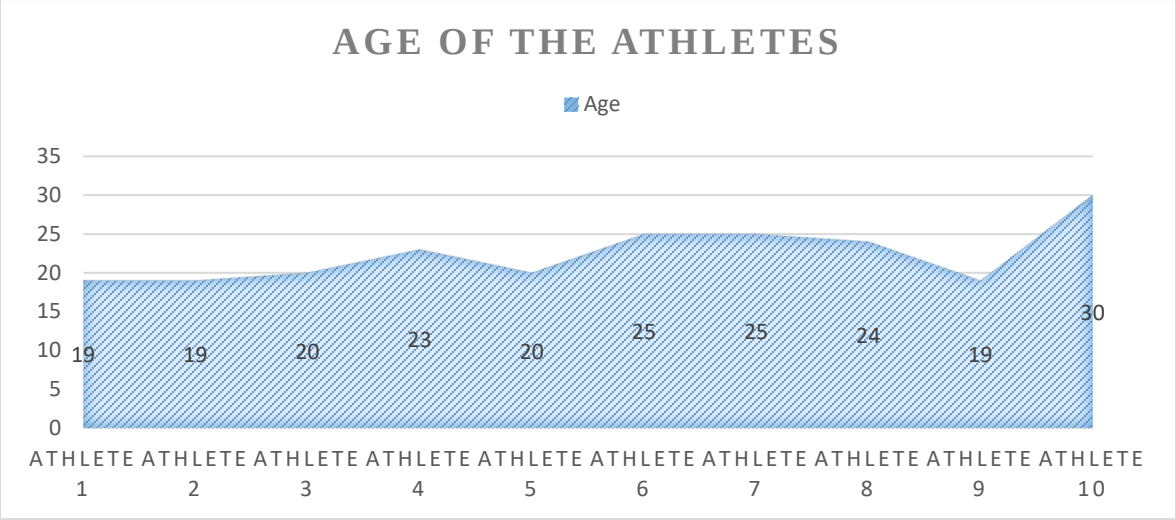


Figure 2 Age of the participants

When it comes to gender, a gender equity approach was used therefore as it can be seen from the graph below, 50% of the athletes were female and 50% were male.

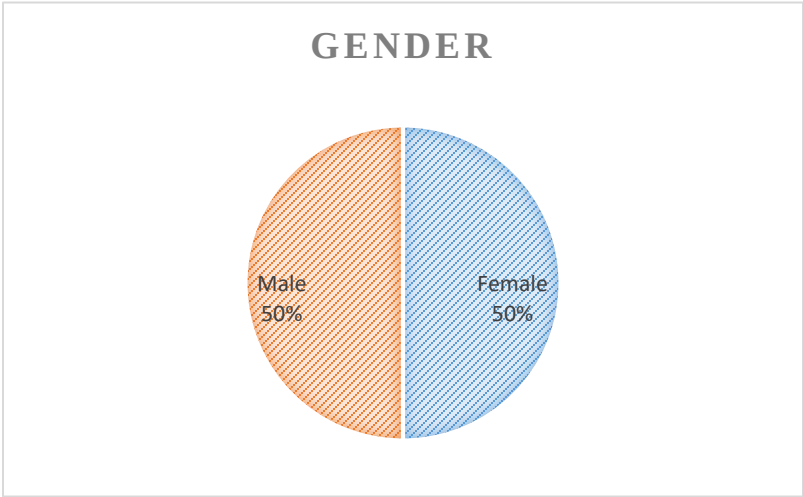


Figure 3 Gender of the participants

[1] The age range 15-29 is often selected for statistical purposes at EU level (Council of Europe and European Commission, 2017)

Furthermore, in order to retain nationality representation within the proportion of the population, participants from different ethnic backgrounds were asked to be part of the study. As a result, majority of the participants were Macedonians, 3 participants were Albanians and 1 participant identified himself as part of the Turkish minority.

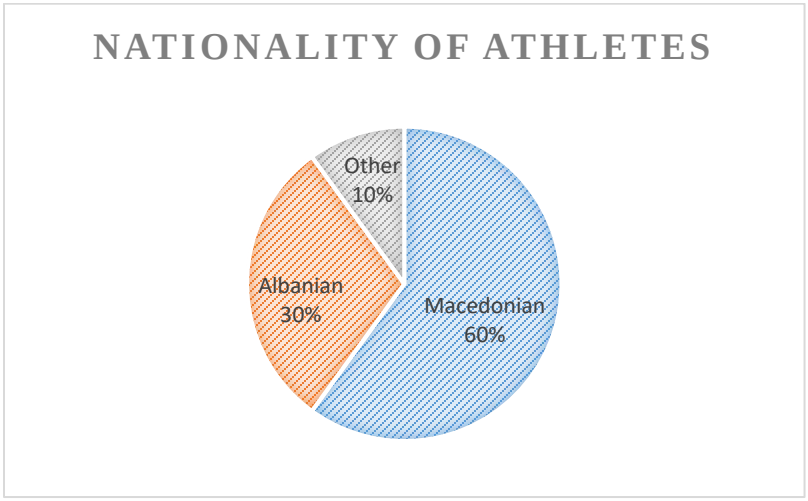


Figure 4 Nationality of participants

Detailed participant demographics can be found in Appendix 1.

Procedure

For the needs of this research, a semi-structured interview guide was prepared. Given that the study covered athletes who received the vaccine and athletes who have not been vaccinated, it ~~is~~ was necessary to adjust the questionnaire for both groups of participants. Therefore, first there was a preparatory phase of the research which contained activities that provided a solid basis for proper collection of data necessary for analysis, such as: theoretical knowledge about

vaccines, the consequences of vaccination in athletes and the consequences of non-vaccination in athletes.

Participants in this research were involved on a voluntary basis. They were informed about the purpose of the study. The interviews took place in a comfortable and confidential environment. The interviews were conducted during three 20-30 minute interviews with each participant. Each session was recorded and field notes were taken to document the information. The researcher used demographic questions along with open-ended questions to collect data from participants. The topics discussed during the interview related to the following three topics: the psychological condition caused by COVID-19, the changed dynamics of sports activities and the dilemma caused by the vaccination against COVID-19. The researcher documented both the physical and emotional behavior of the participants.

Data Analysis

The data was analyzed using the phenomenological method proposed by Colaizzi (1974). This means reading the data from each interview and noting important statements. Significant statements, topics, and topic clusters are then determined through several rounds of discussion. The process of detailed data analysis is as follows: First, the transcripts of the interview was read several times to get acquainted with the data and to extract meaningful statements directly related to the phenomenon of the study. Then, the broader meanings of the given answers are formulated. Similar answers are grouped into topics, and similar topics are integrated into clusters. The next step is a comprehensive description of the phenomenon, incorporating all the revealed questions to capture the essential structure of the phenomenon. Review all the steps of

the analysis procedure was important to confirm that they sufficiently capture the essential structure of the participants' experiences and the basis of this research.

Ethic

In terms of confidentiality and privacy preservation, various steps were taken during the data collection and analysis process to ensure data confidentiality. First, permission was requested from the Swimming Federation of North Macedonia for the participation of swimmers in this type of study. Then the thematic objective of the paper and a structured questionnaire were submitted to the participants who expressed their desire to be part of this study. Second, the cited overview of the thematic analysis was carefully followed to ensure a thorough and reliable analysis of the data. Third, in addition to recording during the interview process, participants were asked for their permission to record the interviews. Fourth, direct quotes from participants are included in the results to ensure that the information is presented accurately. As a final step in the whole process, participants in the current study were sent a copy of the interview transcripts to review and provide any feedback or changes if they desired (no one had any feedback or requested changes). After the study was completed, participants were provided with a copy of the summary results, although no one responded with additional feedback.

Results

In the previous months, all COVID 19, restrictive measures have been removed on the territory of North Macedonia, and with that the swimmers who are participants in this research have returned to their normal activities. However, the restrictions that were introduced in North Macedonia during the beginning of the pandemic, when it comes to athletes, especially swimmers, created impossible conditions for training. In such a way, like the rest of the athletes, the professional swimmers also faced something that for them, as well as for the rest of the world, was completely unknown and uncertain.

Today, after two and a half years since the beginning of the COVID-19 crisis, the situation has significantly improved and is more relaxed, even if it is hard to presume what will follow in the next period and when the pandemic will be officially over. According to the WHO, this is due to the rapid finding of a vaccine and the vaccination carried out throughout the world. But whether and how much athletes agree with this way of dealing with COVID-19 is the answer to what this research analyzes through the qualitative analysis of ten professional swimmers. Their answers can be classified into three levels in relation to the questions asked, namely:

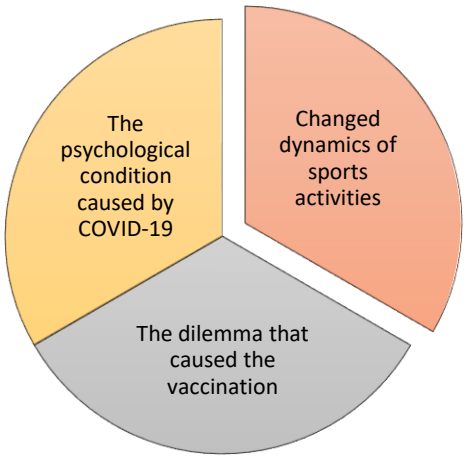
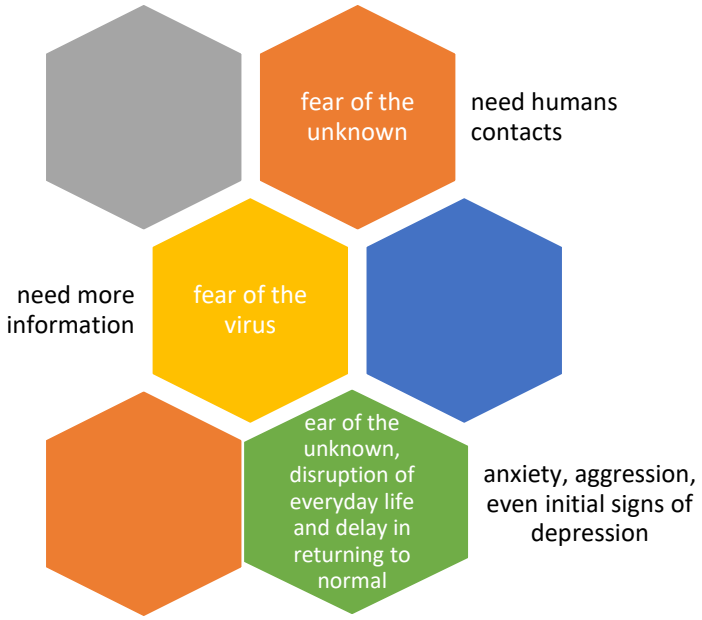


Figure 5 Thematic Map of Vaccination in athletes during the Covid-19 crisis

Psychological condition caused by the COVID-19 pandemic



In North Macedonia, the first case of COVID-19 was recorded on February 26, 2020. Already on March 18, a state of emergency was declared, which meant closure and restrictions on many grounds. For swimmers, this meant closing the pools where they constantly practice and

maintain their training. But that was not the real problem at that moment. The problem was the fear of the unknown and what worried the common man more, which was the panic in the whole world at the same time.

"When I got up in the morning, I used to squeeze juice or make coffee first, and in those days when the crisis started, I first turned on the TV and picked up the phone to hear and see what was happening. I was just waiting when the press conference of the Minister of Health will be and what will be said about COVID-19."

The initial shock of this type of health crisis was received by the population with skepticism, with the hope that it would pass in a week or two. But the complete quarantines and restrictions imposed by governments all over the world pointed to something far more serious than that period. The fear of the virus was growing, especially after the situation with Italy:

"I thought I was watching a movie and this wasn't really happening. This all seemed like some game that just had to end with the push of a button. But the thought that many people are already dying, and young people, I began to feel as a possibility for the end of the world. Not being able to go out and run every morning, and not being able to swim every day further accumulated negative energy in me."

With the development of the pandemic and the drastic increase in the number of infected in North Macedonia, longer quarantines and the inability of people to function even close to normal were imposed. This situation caused a different dimension in the perception of the crisis. Swimmers as athletes need daily practice in special conditions such as swimming pools or open water. Many people from around the world do sports in other ways besides swimming. All this was now postponed and in a way forbidden, due to the social and physical distance that was

imposed. Among a certain group of people initially this was accepted as a kind of rest and turning to family and family obligations. But the swimmers who were the interest of the research are young people who need humans' contacts.

"The hardest thing for me was that I couldn't go out when I wanted, where I wanted, to exercise, swim or simply go for a coffee. First I said to myself that maybe this is the time to rest and spend time with my family. But because I couldn't spend the energy I channeled through swimming, I had periods when I didn't want to talk to anyone, especially the elders in the family. I just wanted to swim and swim, because only then am I myself. I thought if they didn't release us for a while I'd forget how to swim or I'd never get back in shape."

According to psychologists, the COVID-19 crisis caused a surge of negative emotions that were caused by several factors: fear of the unknown, disruption of everyday life and delay in returning to normal. These factors affect athletes even more because of their rhythm in everyday life. So, according to some of the respondents, they had a series of difficulties with accepting the reality caused by COVID-19, anxiety, aggression, even initial signs of depression.

"*When I realized that this crisis would be longer than I expected, insomnia began to appear, I ate excessively, nervousness and impatience, to periods when I just wanted to be alone and cry. I just wanted this to be over and I could swim and compete again. I missed my colleagues, my friends, my coach, I missed training before a performance. And it seemed to me that this was taking much longer than it actually was. When I wanted to study, I had no concentration, and I had enough time. There was just nothing I had to do, I didn't want to do. And I wondered, is there an end to this?'*

Changed dynamics of sports activities

During the COVID-19 pandemic, athletes experienced a different focus and dynamics of their sports activities. Restrictions, social and physical distance, cancellation of sports events contributed to athletes facing a completely different everyday life. That meant the impossibility of professional training, cooperation with the team, interaction with teammates happened virtually, phone calls, text messages, etc.

"The first contacts between us swimmers were only a few days after the Government's first reaction to the situation with COVID-19. We were worried and wondered how this virus could become so powerful and stop humanity in an instant. Then, after the introduction of the restrictions, contacts became less frequent and every time we heard each other, we first asked how we were and how our family was, and then maybe we would talk about how and what we would do regarding training and scheduled competitions."

Over time, some athletes have found a way to exercise and stay in shape. The swimming sport provides an opportunity for training individuals, and therefore some of the respondents said that they found a way, despite the restrictions, to provide conditions for exercise. Although they needed their colleagues, coaches and team, still the need and desire to swim, many of them practiced independently and swam in private pools,

"If before COVID 19 I exercised 9-10 times a week, after the first month of the corona crisis, with the help of some of my acquaintances I went to Mavrovo where one of them had a private pool where I could swim. Then during that period, I swam twice every day, hoping to keep in shape and that's how I coped with the isolation and separation from the team."

After a period of several months, when the number of infected people decreased, i.e. protocols were introduced resulting from the plan to reduce the restrictive measures to reduce the spread of the virus, the pools were reopened and training was under the exclusive observance of certain rules. For the participants in this research, that was really a mitigating circumstance.

"When the coach told us that we were going back to the pool again, for me it was the most beautiful moment since the beginning of the crisis. Although the conditions were not ideal, it still meant a return to some sort of normality. I just wanted to swim, so that I could keep the form and chase the result that would take me to the next possible competitions, even though swimming still seemed impossible to me."

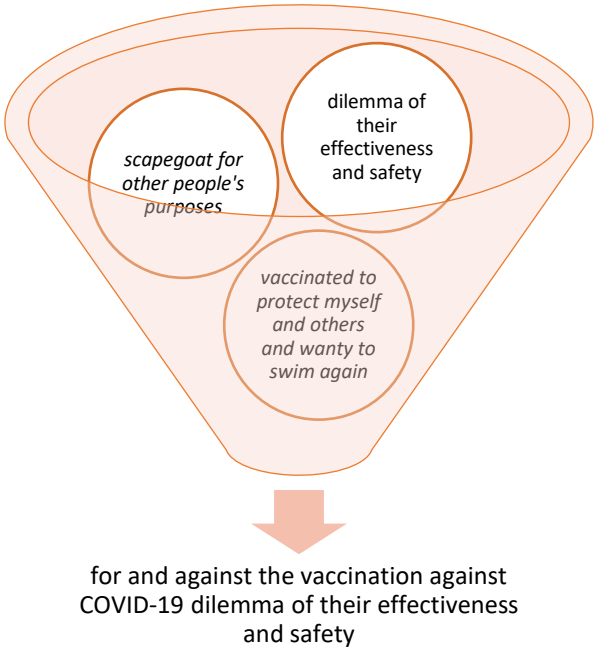
The postponements of many sporting events, especially the summer Olympics in Tokyo, by swimmers is a big disappointment. Those swimming pools are the place where everyone wants to prove themselves and fulfill their goals. But despite the great efforts of the organizers, 2020 is the year that changed the world, and with it the plan for the Olympics.

"I have been training for years, and I imagined myself at the Olympic Games. And when I finally had that opportunity, COVID 19 happened. My world came crashing down. It was my chance and I sincerely hoped that the pandemic would end before the event was cancelled. But despite that, I remained firmly convinced that my place is there and I will get to be at that level despite the small amount of training and the bad mental state."

With the passage of a certain period, despite the strict rules and protocols for training, sports competitions, presence of the audience, modalities were found to practice and compete in the busy dynamics. How much and whether it suited the athletes is a question that will continue to be investigated.

"When I was told that the Ohrid Marathon would not take place, it was a shock for me, and I knew subconsciously that it would be like that. The international swimming federation FINA has also canceled the entire world marathon series following the recommendations of the World Health Organization. One of the oldest sports events in the Republic of North Macedonia did not take place for the first time in 28 years, just when I was preparing to participate for the first time. The disappointment was great, but I had no choice but to hope that 2021 was my year, and as it turned out."

The dilemma that caused the vaccination against COVID-19



The pandemic caused by the corona virus COVID 19 has spread incredibly fast all over the world and has shown the human mediocrity in this highly technologically advanced world. Advanced medicine proved unsuccessful in prevention at the beginning of the crisis, but that's why the first vaccines against this disease were created less than a year after the appearance of the virus. It was precisely this rapid consolidation of pharmaceutical companies in the production of a vaccine against this disease that confused people and posed the dilemma of their effectiveness and safety.

"If they could find a vaccine for covid19 so quickly, why is there still no vaccine against a number of long-term infectious diseases? That's what confuses me and scares me. Is this a game or is it just showing that we depend on those companies?"

The dilemma especially arose with athletes and their sensitivity when it comes to ingesting something like this into the body. Despite recommendations from the WHO that

vaccines are safe, especially for athletes, there has been resistance from their side. The ability to read everything on the Internet today has even more distrusted them.

“I live a healthy life, I pay attention to my diet, what I drink and I don't use any drugs unnecessarily. And now all of a sudden I have to be vaccinated with a vaccine that they managed to invent in nine months, and no one guarantees one hundred percent of its safety. I don't want to be a scapegoat for other people's purposes.”

But misinformation and fake news, the small number of studies, have helped to create resistance to vaccination. Although an athlete's body is his temple, some of those surveyed had full confidence in the vaccine and believed that it was the only way out of the whole situation.

“I honestly don't know what's going on. Many people died and it hurts me. If the vaccine will help reduce that number, then I have nothing to think about. And I didn't mind. I just want to swim and compete and I want to live a normal life. There are expert people for that who take care of our safety. I just got vaccinated to protect myself and others, and to be able to swim and fulfill my purpose in life”.

Vaccination as a way out of this crisis is not only a moral and ethical decision. It should be a decision that the athlete is willing to make and believe in. But the dilemma concerns what the vaccine can contribute to an athlete.

"When the vaccine appeared, I immediately knew that I would get vaccinated. I am a swimmer, but also a medical student. I believe in medicine and I believe that all those cases that appeared in certain athletes were not related to vaccination, but to the consequences of COVID-19. Many young athletes in the past and certainly in the future will have health problems, because they are in front of people with their own flaws and shortcomings."

Vaccination as a concept is not new, but the fear imposed by certain people, including doctors and sports public figures, has had a huge impact on young athletes. But that attitude seems to justify the need for athletes to be the eyes and ears of the public and for their fans and supporters to follow their example.

"I just wanted to swim and nothing else mattered to me. I respect the opinion of each individual and therefore I expect that my decision to vaccinate will be respected as well."

"I wasn't sure if I should undergo vaccination, but COVID-19 took the life of a close person and it made me very sick. That's why I decided that despite the fact that I suffered from the disease, I will respect the recommendations of the doctors and also of my coach."

"I was not at all satisfied with the fact that I had to be vaccinated, so that I could move around, participate in competitions. But my desire to swim and prove myself in what I was the best, I decided that I will get vaccinated. So not that I wanted to, but I had to. And it is what it is, I hope it's good that I decided that way."

Discussion

The purpose of this study was to hear the opinion and attitude of professional swimmers in the Republic of North Macedonia regarding the vaccination against COVID-19, both as professionals and as young people who were affected and caught by this timeless pandemic. The research was conducted as a qualitative analysis of phenomenological based interviews with ten professional swimmers aged 18 to 30 years. This analysis was structured around three themes: the psychological state caused by COVID-19, the changed dynamics of sports activities, and the dilemma caused by the vaccination against COVID-19.

First, the experiences of athletes in this study align with findings from previous studies in which researchers also interviewed athletes about their experiences during the COVID 19 pandemic (Gupta & McCarthy, 2021). The identical result, as in this research, shows an unpleasant experience among athletes regarding long restrictive and quarantine periods. Through the analysis, it was shown that the fear of the unknown, the high concern among the medical public about the condition even more causes in the athletes a feeling of uncertainty and concern for themselves, for their loved ones and for the future in general. The inability to perform daily activities in a certain timing and order has caused psychological problems among a large percentage of the population, especially among young people. According to Villani at para. (2021), in a study conducted on a university campus in Rome on a sample of 501 students, it was shown that the COVID-19 pandemic caused psychological problems and disorders among students. And 35.33% of the respondents were classified as anxious, and even 72.93% as depressed.

The initial fear of the virus was linked to movement restrictions and changed the schedule of professional athletes as well. It is in the analysis of the interviews in this study that it can be noted that 75% of the participants had a hard time enduring this period, the remaining 25% spent their newly discovered free time through academic work, new activities or deliberate self-improvement (for example, reading, meditation) and seemingly seemed to experience some joy or fulfillment in their leisure time. In the analysis of the interviews regarding how the swimmers faced the changes in the dynamics of their sports activities, it is noted that this problem is more prominent in the male group. All five respondents agreed that this affected them the most during the pandemic. The women's group showed a greater understanding of the restrictions and they were only scared of what was going to happen next in terms of their form and missed matches. However, it is noteworthy that this changed status among professional swimmers also causes another type of problems. Thus according to Facer-Childs et al. (2021) significant changes caused by the pandemic led to a decrease in the frequency of training, followed by longer periods of sleep, social withdrawal, increased frequency of watching television, computer games and telephone during the crisis. They believe that increased symptoms of depression, anxiety and stress are associated with these changes in training dynamics in all international level athletes. Some of the participants stated that they did not have the opportunity to practice all 12 divisions, which for the swimmers is too long a period without training, which will further have certain implications on their results. After several months of bans and a reduction in the number of infected people and the vaccination started in the Republic of North Macedonia, following the recommendation of the WHO, certain protocols for behavior during a pandemic were adopted. For swimmers, that meant the opening of the pools, but attendance was conditioned by certain rules. During the training, it was required (Government of RSM, 2021):

- To follow the recommendations for social distancing and to maintain a distance of 1.5-2 meters in the course itself and to limit the number of swimmers in the course.
- During training, do not make physical contact with others, i.e. no shaking hands or hugging.
- To reduce going to the toilet and to perform all physiological needs before coming to training.
- To keep a social distance from other swimmers during the vacation, for this, markers will be used that will be visible and will be placed at the very edge of the pool so that each swimmer will know the place where they will stand in the lane.
- Rest retention for swimmers of all clubs will be done exclusively on one side of the track (swimmers from all clubs to stand on the right side of the track, thus maintaining the prescribed distance between swimmers).
- The coaches will wear masks during the training.
- While one group is training, the other group is preparing in the tribune area or the terrace area or the dressing rooms in order to avoid contact with each other.

The cancellation of competitions is another problem faced by sports and it represents a big blow to their confidence and commitment. Within the scope of this study, the same problem was noted by the interviewed participants. Thus, part of the participants were also swimmers who were supposed to perform at the Summer Olympic Games in Tokyo, which were cancelled, and were held the following year under strict protocol conditions that were a real challenge for both the organizers and the participants.

The last and most important part of this study was the dilemma surrounding the vaccination against COVID-19 and the possible effects it has on athletes. This dilemma caused an avalanche of reactions in the world public. The uncertainty and fear caused by COVID-19 contributed to

uncertainty regarding the vaccine as the only way out of this crisis. But the athletes are especially careful about their health condition, so two currents have appeared regarding the vaccine. In this study, out of the ten participants, half of them were vaccinated, and half were not. In their statements, the attitudes surrounding the vaccine and safety were characteristic. The non-vaccinated group is adamant that they do not believe in the complete safety of the vaccine despite numerous studies confirming that safety. However, the individual decision they make is usually based on how quickly the vaccine was made and the possible health consequences of it.

Although in the research conducted by Singer at al. (2022), the vaccine is safer than the virus itself. Myocarditis (or pericarditis or myopericarditis) from primary infection with COVID-19 has occurred at a rate of as many as 450 people per million in young males. These individuals infected with the virus are 6 times more likely to develop myocarditis than those who received the vaccine (Singer, 2022). However, certain athletes still show an aversion to the vaccine and had a problem with participating in competitions where vaccination was mandatory, such as Novak Djokovic and the case of the 2022 Australian Open appearance.

Another point that deserves attention is the perception towards vaccination between genders. According to Ungar (2021) More women than men are getting covid vaccines, even as more men are dying of the disease. Out of the 10 participants in the study, female participants constructed the majority of the vaccinated participants. This is in correlation to the answers given by respondents of a study conducted by Indago (2021). Namely, 68% of the women respondents stated that they would take the vaccines voluntarily once it is approved, while 61% of the males responded positively to the same question. It should also be noted that other studies suggest reversed situation as per Zintel et al (2022) sixty studies were included in the review and data

from 46 studies (n = 141,550) were available for meta-analysis. A majority (58%) of papers reported men to have higher intentions to get vaccinated against COVID-19.

In this study, the vaccinated group of participants had different attitudes about why they received the vaccine. According to some of them, it is the only way out of the pandemic, another swimmer believed that this is the only way to protect himself and those close to him, and while some of them underwent vaccination just to be able to function within the requirements, training, performances and competitions. Although a large number of studies show that COVID-19 vaccination in a group of physically active healthy individuals had no impact on a large number of physiological endpoints measured in blood and by respiratory gas exchange during graded cycling exercise (Batatinha at al. 2021). This is exactly why studies of this nature are of particular importance for establishing the truth and what the WHO recommends regarding this virus. The differences in attitudes and the dilemma surrounding vaccination is certainly influenced by the psychological stress caused by the impact of COVID-19.

Several important details regarding the subject of research were noted in the study. The swimmers participating in the study are young people who are physically healthy, but are facing stress due to the whole situation with COVID-19. The rapid change in everyday life, the sudden and unexpected need for isolations and quarantines, then social distancing and finally the vaccine that the world factors causing confounding effects were expected. Athletes are people who channel their energy through sports activities, and the inability to do so has caused them a large number of psychological changes and disorders. Through a psychological and developmental analytical model, it was realized that the confrontations in that field and the dilemma that arose over the consequences of vaccination allowed the athletes to choose a side in the whole situation

without knowing all the facts. Therefore, to better deal with these aspects, it would be good when:

1. Athletes would have at their disposal the real facts and knowledge about the vaccine, its structure and action.

2. The Ministry of Health of North Macedonia should provide papers for professional athletes that prove the safety of vaccines for athletes and their health.

3. The low rate of vaccination in the country requires an appropriate campaign to raise the level of awareness for citizens about vaccination. But it should be a campaign that addresses the real reasons for vaccination backed by facts.

4. Supporting athletes to find balance in their lives, rather than over-identifying with their sporting idols.

Limitations and future research

This study, despite the phenomenological approach of qualitative analysis, has its limitations. First, it refers to the fact that a small group of professional athletes was covered at a time when all restrictions have been removed and swimmers are functioning normally today in contrast to the peak of the pandemic. Second, vaccination in North Macedonia has a low percentage of the population, i.e. 40.2%, in contrast to the percentage at the national level, which is 62.1%. (WHO, 2022). It is due to poor awareness and the mentality of not accepting changes. The same applies to athletes. Thirdly, the athletes covered in this study are young people who are

yet to mature and have certain changes in their attitudes, therefore the reliability of their statements is uncertain.

The findings obtained from this study also highlighted a possible area for future research related to the experiences of athletes with the pandemic and the vaccination process against COVID 19. Specifically, the findings represent a need for scientific research on the dilemma that has emerged as a major theme during the pandemic, should and should not be vaccinated and the effects of vaccination in athletes. It actually highlights the need for future research to help athletes and the sports public understand how unsubstantiated fake news can harm public health. As the condition caused by the COVID-19 pandemic has changed the perception of human vulnerability, it will be useful to understand the experiences of professional athletes during the pandemic and vaccination to support their success and well-being most effectively, both in the short and long term.

Conclusions

This study aimed to explore the dilemma that arose among professional athletes regarding vaccination against COVID-19. This analysis used interviews with study participants based on a phenomenological approach. This allowed certain questions that were semi-structured to develop into a conversation through which some opinion could be obtained from the participants, and then that behavior was adapted to the context of the question thus creating an understanding of the participant's views from the information obtained through the interview. This methodology allowed both the participants and the researcher to uncover new questions from their stories about their attitudes regarding the COVID-19 pandemic and vaccination.

From the received answers and sublimated results, it can be concluded that the COVID-19 pandemic has affected both athletes and all people in the world. But when it comes to the participants in the analysis, it is clear that they faced fear, disbelief and expectation for a quick end to this crisis. This changed dynamic, and later the consequences of the psychological impact of COVID-19, is also reflected on athletes through their further actions.

However, the greatest attention in this study is devoted to the vaccination against COVID-19. For some, this is the only way out of the crisis, for others, it is a hasty step and poses a danger to the human body. And in this study, the participants had opposing views. Their views on vaccination were diametrically different. But from the analysis, it was seen that both groups do not have enough knowledge and facts about whether there is and what consequences this type of vaccine could possibly have.

Therefore, it must be concluded that vaccination is the only way out to end this pandemic with COVID 19. Athletes must be more informed from the right places about vaccination, that is,

they must have an open mind in the 21st century, which is the age of information technology. The vaccine, despite the fact that it appeared very quickly after the appearance of the virus itself, is safe and shows less negative effects than the exposure of the virus itself. Athletes should be an example for others in the face of the moral and ethical dilemma that has arisen. Therefore, the results of this research can help in terms of how much vaccination is needed for athletes and their normal functioning, then to clarify the fears they face regarding vaccination and its possible consequences.

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APPENDICES

Appendix 1

Name	Age	Gender	Nationality	Vaccination status
Athlete 1	19	Male	Macedonian	Unvaccinated
Athlete 2	19	Female	Macedonian	Vaccinated
Athlete 3	20	Male	Albanian	Unvaccinated
Athlete 4	23	Female	Macedonian	Vaccinated
Athlete 5	20	Male	Albanian	Unvaccinated
Athlete 6	25	Female	Albanian	Unvaccinated
Athlete 7	25	Female	Macedonian	Vaccinated
Athlete 8	24	Female	Macedonian	Vaccinated
Athlete 9	19	Male	Turkish	Unvaccinated
Athlete 10	30	Male	Macedonian	Unvaccinated

Appendix 2

Questionnaire

Demographic analysis

1. Age of participants

2. Gender

3. Nationality

Interview questions

1. How did you face the outbreak of COVID-19?

2. What feelings did COVID-19 and the restrictive measures cause you?

3. What scared you the most about not being able to swim on your daily schedule?

4. What did the cancellation of the competitions and the changed training protocols in the swimming pools mean for you?

5. In your opinion, is vaccination the only way out of the COVID-19 pandemic?

6. Are you sufficiently informed about the safety and consequences of the vaccine against COVID-19?

7. Should you, as young people and athletes, have a dilemma about the information provided by the health authorities and institutions?