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Article

The Impact of the COVID-19 Pandemic and Related Measures on the Sports Industry in Slovakia

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Abstract: Stopping competitions and the training process was a shock that sports organizations had to deal with. Financial problems forced them to rethink the situation. In Slovakia, this became critical. This is why we started to research this issue to provide an answer to the research question: What are the actual consequences of government measures on the sports industry? A survey was conducted including two questionnaires made available between the pandemic waves. The first questionnaire was designed for athletes and sports professionals (N = 1040). The second addressed sports organizations (N = 626). Questionnaires were accessible via sports organizations' portals. The ban on organizing mass sports events affected this industry. More than 80% of respondents had an experience of having to cancel a competition or training activity. This had an impact on their income as well as their future activities. We cooperate with government institutions and sports associations in Slovakia, so the results were provided to government officials. However, due to political changes accompanied by changes in the ministries responsible for the sports industry in Slovakia, it is relevant to summarize the research results in their present form. In this way they can serve as background for future sports policies.

Keywords: COVID-19 pandemic; economic impacts; sports industry; income; sports management



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1. Introduction

Sports participation has a vital value in peoples' lives (McBride 2021). Sports are critical for improving physical fitness, enhancing self-confidence, and providing feelings of satisfaction and relaxation (Adamčák et al. 2017). The coronavirus pandemic (COVID-19) became a global public health crisis in December 2019 (Winkelmann and Games 2021). Based on Alam and Abdurraheem (2021), before the pandemic (in 2018), the global sports sector's value was estimated to be USD 471 billion (an increase of 45% since 2011). Additionally, millions of people around the globe are employed in the sports industry, which supports its economic relevance.

The COVID-19 pandemic had a destructive effect on the global economy, including the sports sector. For illustration, it caused a decrease in revenues, a high unemployment percentage, increase in living costs, loss of jobs, and decrease in living standards (Alam and Abdurraheem 2021). Moreover, the pandemic had a destructive impact on sports competitions and the training process in both amateur and professional leagues all over the world (Schüttler et al. 2021). As Weston (2021) noted, the impact of the pandemic on sports was likely to outlast the pandemic and the financial and legal repercussions of COVID-19 in sports were astounding. Keshkar and Karegar (2022) described specific effects of the pandemic on sports. It led to the cancellation or postponement of major events, caused financial setbacks for sports organizations from lost revenue streams, caused disruption to

the athletes' training and competitions, diminished opportunities for showcasing abilities, required alterations to the rules of play to accommodate social distancing, and increased the popularity of sports that allowed proper social distancing.

Within the European context, sports are important for national income and for the labor market (Heinemann 2005). Due to the COVID-19 pandemic, several competitions were postponed or cancelled in Europe. In 2019/20, COVID-19 caused the postponement of EURO 2020 by twelve months after lockdown restrictions were introduced to protect the health of players and officials and to minimize pressure on member associations. Additionally, the Union of European Football Associations (UEFA) decided not to award any bonuses to mitigate the impact of this pandemic. Further, salary reviews and promotions were postponed to 2021. Traveling and accommodation expenses were reduced, and non-essential projects were cancelled. As a result, UEFA decreased their costs by EUR 34 million (UEFA 2019/20). In 2020, sports events and professional sports leagues, including soccer, handball, and hockey leagues, were cancelled or postponed, e.g., in Austria (Tovar 2021), Germany (Horky 2021), and England (Parnell et al. 2020). Wiltshire et al. (2022) estimated the impact of COVID-19 across the sports industry to have been a reduction of around GBP 52 billion in GDP and the loss of over a million employees in Europe. For example, in Portugal the pandemic negatively affected stadium attendance of Liga Portugal, resulting in a sharp decline over two seasons (2019/2020 and 2020/2021). The attendance was far below the average for three seasons (Luz 2024). The situation returned to normal in season 2022/2023.

In the context of this study, the most popular sports in Slovakia are ice hockey, football, handball, tennis, skiing, volleyball, and basketball (Spectacular Slovakia 2021; Varmus et al. 2022). The statistics for 2020/21 indicate that Slovakia is one of the top countries in the number of registered ice hockey players with a total of almost ten thousand players (Statista 2022b). In 2020, in the European Union (EU), 1.3 million individuals were employed in the sports industry. That is around 100 thousand more compared to 2015 (an overall increase of 8.4%). Between 2015 and 2020, regarding the percentage of young people employed in sports, Slovakia had the largest increase of 16%, followed by Croatia (14%) (Eurostat 2021). The sports industry in Slovakia had approximately 11,800 employees in 2017 (Statista 2022c), indicating the importance of this sector for overall employment. Based on Act no 440/2015 Coll. in Slovakia, the sports division of the Ministry of Education, Science, Research and Sport of the Slovak Republic (MESRS) was responsible for developing sport policies during the pandemic. Slovakia is also a party to the UNESCO Convention against Doping in Sport (MESRS 2022). Recently, in February 2024, responsibility for sports affairs and sports policies and regulations was transferred to the newly created Ministry of Tourism and Sports (Bratislava 2024). This political change is one of the arguments making this research specifically relevant now, as new authorities are responsible for setting policies supporting the sports economy in the country and protecting sports entities from the consequences of future crises.

The Slovak government started to implement strict anti-COVID-19 measures in March 2020 (Nemec and Špaček 2020). As a result, the number of football matches played by the Slovak national football team was reduced to six in 2020, in comparison with ten matches in 2018 (AFS 2022). Sports are important for revenues in European countries, including Slovakia. Before the COVID-19 pandemic in 2018/19, the UEFA received EUR 478 million from the sale of commercial rights, EUR 3309.4 million from broadcasting rights, and EUR 50.3 million from tickets and hospitality. However, because of COVID-19, these revenues dropped in 2019/20 to EUR 417.8 million from the sale of commercial rights, EUR 2593.3 million from broadcasting rights, and EUR 3.8 million from tickets and hospitality (Statista 2022a). We support the findings of Byers et al. (2021) who asserted that there are not sufficient studies researching the impact of COVID-19 on sports organizations and their governance. Despite the significance of researching the impact of COVID-19 measures on the sports industry, there are few studies in Europe (e.g., Beiderbeck et al. 2021) and there is no comprehensive study performed within the conditions of Slovakia.

Furthermore, [Kovacs et al. \(2021\)](#) affirmed that there are very few studies on the topic of the influence of COVID-19-related measures on sports activities in Europe. These studies include, for instance, in Germany, the economic effect of COVID-19 measures on professional sports investigated by [Horky \(2021\)](#), while the situation in Montenegro was examined by [Begović \(2020\)](#).

Our study was also stimulated by the fact that it is critical to investigate the short-, medium-, and long-term impacts of COVID-19 on the European sports industry (as suggested by [Beiderbeck et al. 2021](#)) because there is a clear scientific gap. Previous research in Europe investigated the impact of COVID-19 measures on players of specific sports, such as handball players (e.g., [Fikenzer et al. 2020](#)). Other studies were conducted to investigate the effect of COVID-19 on football players (e.g., [Schüttler et al. 2021](#)). Thus, our study contributes to the existing body of research by providing a comprehensive and multifaceted perspective on the financial effects of measures against COVID-19 on the whole Slovak sports industry. Our research is important for the sports sector in Slovakia because previous scholars focused on the effect of COVID-19 on other domains, such as the automotive industry (e.g., [Kufelová and Raková 2020](#)) and the cultural and creative industries (e.g., [Vitálišová et al. 2021](#)). This study's originality stems from the inclusion of perspectives of both individuals, such as athletes and sports professionals, as well as sports organizations.

This study also explores the effect of Slovak government measures against COVID-19 on the sports industry, providing assistance for the future management of crises or pandemics, specifically since Slovakia never had to cope with an outbreak of a major infectious disease ([Nemec 2020](#)). The value of this study is supported by the fact that the European sports industry needs more evidence-based policies ([Eurostat 2021](#)). In the past, the sports sector has undergone considerable adaptation and in numerous countries new sports policies have had to be introduced ([Girginov 2001](#)). Slovakia faced a similar situation in relation to the COVID-19 pandemic. The current research is valuable in the post-pandemic period by considering the implications and presenting recommendations for policymakers and practitioners on how to operate sports organizations in countries such as Slovakia, specifically, during pandemics or other future crises. This is supported by [Parnell et al. \(2020\)](#), who suggested the need to investigate sports actions related to COVID-19.

The research question studied focuses on the actual consequences of government measures on the sports industry. Finding the answer to this question represents the study's main objective. The hypotheses, whose verification leads to the achievement of partial objectives alongside the main objective, focus on the identification of specific income sources of sports individuals and organizations that were affected by the pandemic and related measures. They also focus on the connection between lost sources of income and total income decrease. The last focal point is considered in terms of the actions performed by sports individuals and organizations to cope with the consequences of the pandemic and the related state measures. For each of the above, statistically significant differences were assessed in relation to the sport type and the sports entity type. The main economic effects studied include the identification of the specific lost income sources and the efforts made to minimize the costs or to look for substitute sources of income. All the findings obtained via the process described lead to the proposal of effective recommendations for policymakers and sports organizations' managers. These are also designed to include viable crisis management strategies. Therefore, the recommended policy changes include support for funds reserves generation, the conditions for achievement of other income sources (e.g., from sponsorship), and financial education for sports managers and individuals as a part of the preparation for proper crisis management once such a situation occurs.

The following chapter presents a literature review, supporting the formulation of the selected research hypotheses. The methodology describes the data used, including details of the sample and its representativeness, and the methods applied. This is followed by interpretation of the results and a discussion, putting this study into the broader context of research performed regarding this topic around the world. Concrete recommendations

are listed in the conclusions, accompanied by discussion of the limitations of the applied methodology employed, and consideration of possible future research directions.

2. Theoretical Background and Hypotheses Development

The analyzed area, the impact of the COVID-19 pandemic on the operation of sports in Slovakia, was examined applying three perspectives. The first relates to the anti-pandemic measures adopted by the Slovak government. The second perspective focuses on the sports organizations themselves and the effects of the pandemic their managers had to deal with. The last perspective is oriented towards individuals working in the field of sports. Here, the theoretical background concerns the factors that influence the behavior of athletes or coaches. The last subsection of the theoretical background is dedicated to definition of the research hypotheses, following the findings from the literature analyzed (see Section 2.4).

2.1. The Slovak Government Measures against COVID-19 (from 2020 until 2022)

Based on [Nemec \(2020\)](#), Slovakia was one of the most active European countries in dealing with the COVID-19 pandemic. The Slovak government was quick in implementing strict measures. In February 2020, the government controlled all the Slovak airports and border crossings to identify infected individuals. Additionally, the government assembled crisis staff who were responsible for country management during the crisis, located at the Ministry of Health. The government also prevented flights from Italy to Slovakia, cancelled officials' international trips, activated emergency contact phone numbers, and switched education to an online form.

From March 2020, the Slovak government closed retail shops and services, ordered shops to provide disinfectant or gloves at the entrance, established specialized hospitals to treat COVID-19, and terminated free railway transport for students ([Nemec 2020](#)). [Nemec and Špaček \(2020\)](#) indicated that the Slovak government implemented other rigid measures against COVID-19, such as mandatory quarantine for returnees from abroad, obligatory face masks, and a short "blackout" (shutdown) during the Easter holidays. From April 2020, the COVID-19-related restrictions became less strict, and the way of life became somewhat close to normal in Slovakia. However, protective measures at public spaces and airports were still obligatory.

A two-week shutdown and a 90-day national state of emergency were imposed after a government meeting in Slovakia on 24 November 2021. Mass events could be held only with specific measures respected. These included wedding ceremonies, funerals, christenings, sessions of public authorities, elections, and professional competitions in ice hockey, football, handball, volleyball, and basketball ([Spectacular Slovakia 2021](#)).

COVID-19-related restrictions could still be found in Slovakia in 2022 with the Omicron wave. Until 10 January 2022, the country had strict anti-pandemic measures ([Krempaský 2022](#)). The Slovak government set new rules related to organizing mass events; these were active from 12 January 2022. For professional sports competitions and training, the testing of athletes and members of the organizing team who were neither vaccinated nor recovered from COVID-19 was mandatory. Regarding sports competitions and training sessions for people older than 18, this was permitted only for vaccinated and recovered persons, limited to 100 individuals ([Spectacular Slovakia 2022](#)).

Vaccination and testing requirements when entering shops and cultural, sports or entertainment facilities, and when attending events were obligatory from 19 January 2022 ([The Slovak Spectator 2022](#)). From 4 February 2022, all those arriving in Slovakia were required to fill out the online form "eHranica" and, upon request, submit a confirmation to the police or regional public health officials. It was also mandatory for people not fully vaccinated against COVID-19 to isolate themselves ([Minarechová 2022](#)).

2.2. The Impact of COVID-19 and Its Measures on Sports Organizations

On the global level, the COVID-19 pandemic-related restrictions and measures negatively affected the sports industry and various stakeholders, including sports teams,

athletes, leagues, and broadcasting media (Alam and Abdurraheem 2021). The effort to understand the effect of the economic policy on the managerial decision-making on investments from the period before the pandemic (Malichová et al. 2016) has only become more urgent with its occurrence. Good relationships with stakeholders have been considered an inseparable part of organizations' operation for a long time (Petrovicová and Kasparová 2009). In relation to this, Tovar (2021) stated that COVID-19 caused the closure of sports clubs and cancellation of games and other events around the world and all sports leagues were stopped due to precautionary measures established by local governments. The measures related to COVID-19 prevented audiences from watching sports live or broadcast in European countries such as Germany (Horky 2021).

Due to measures and restrictions related to COVID-19, clubs in Europe faced financial threats (Beiderbeck et al. 2021). Based on Skinner and Smith (2021), losses of revenues among some European football clubs exceeded EUR 1 billion, which affirms the destructive economic impact of the pandemic. COVID-19-related measures caused losses for sports organizations because of the absence of fans, sales, broadcasting, and sponsorships. To mitigate the destructive financial impact, some content and activities were provided by sports organizations, such as through provision of home fitness equipment, e-sports, re-packaged sports goods, and online exercise studios (Skinner and Smith 2021). Such transition of organizations into the online environment should be supported by digitization of human resource management (Kucharčíková et al. 2015; Štaffenová and Kucharčíková 2023). Evans et al. (2020) showed that club owners had to cut athletes' wages across Europe and terminate the jobs of many support staff, while other clubs prioritized keeping support staff jobs and asked government for financial support.

In Slovakia, due to the government measures against COVID-19, from March 2020, all sport facilities were closed. Additionally, it was prohibited to organize sports, social, and cultural events (Nemec 2020). Many municipalities did not provide any grants for sports and culture. Therefore, several top-level Slovak sports clubs approached bankruptcy. The ban of sports activities in Slovakia had a destructive effect on local budgets and revenues. However, the Slovak government postponed the payment of taxes to assist all businesses in this way, including sports clubs (Nemec and Špaček 2020).

2.3. The Impact of COVID-19 and Its Measures on Sports Individuals

Measures applied in relation to COVID-19 prevented people from participating in sports activities and social interactions in sports to avoid the risk of the virus spreading (Mastromartino et al. 2020; McBride 2021). The measures taken caused postponement of the Tokyo 2020 Olympics until 2021. As a result, 11,000 Olympic athletes and 4400 Paralympic athletes who were supposed to compete in the event were negatively affected (Statista 2022d). The jobs of sports professionals were negatively influenced by the pandemic as well (Alam and Abdurraheem 2021).

According to Tovar (2021), athletes faced financial issues and were not able to participate in their usual sports activities. Additionally, it became more difficult for professional athletes to maintain their fitness and many of them lost their sponsorship (Alam and Abdurraheem 2021). Grazioli et al. (2020) concluded that professional soccer players in Brazil who returned to their usual training activities after the COVID-19 quarantine had increased body fat mass and their jump height level was decreased. It became more challenging for sports coaches and managers to maintain motivation (Hitka et al. 2014; Starecek et al. 2018) and the mental, and physical fitness of their athletes so that they would be ready for competitions after the end of the COVID-19 restrictions. Due to the pandemic, athletes had to practice and train alone (Mohr et al. 2020). The findings obtained by Poteko et al. (2023) are consistent with the previously stated facts. According to these authors, athletes lost their advertising contracts, sponsorships, and salaries, and some even their jobs. The pandemic also negatively impacted some athletes' motivation to train, as they lacked training support from their teammates and the personal contact with coaches was very limited.

[Shukla et al. \(2023\)](#) discovered that athletes suffered from higher rates of depression, anxiety, and stress due to physical isolation associated with the pandemic and a lack of exercise. Additionally, athletes' mood, personalities, and resilience capacity played a crucial role in determining the magnitude of the overall impact. Authors of the study identified several risk factors, such as mental and cardiovascular diseases, which could cause additional stress exacerbating the situation caused by isolation, lack of exercise, and fear of viral exposure. All this could lead to elevated levels of anxiety, depression, and poor mental health in general. Masár and Hudáková designed a model of risk management that can be applied mainly in short-term projects to seize the opportunities available and to minimize the potential negative impacts ([Masár and Hudáková 2019](#)).

In the context of the pandemic's effect on athletes, a study by [Assa and Reizer \(2023\)](#) discussed how expanding athletes' identity beyond sports or encouraging them to create an alternative narrative for themselves during a crisis could help them achieve their athletic goals, cope with stressors, and develop stronger total resilience.

In Germany, handball players had to complete an instructed home-based strength and endurance program. Despite this, their endurance levels reduced during the pandemic. Therefore, it was recommended for coaches and managers to monitor individual home-based training ([Fikenzer et al. 2020](#)). In Montenegro, COVID-19 made some athletes end their sporting careers as a result of huge financial losses. Additionally, the pandemic also negatively affected the athletes' physical and mental wellbeing ([Begović 2020](#)).

As shown by [Boržíková and Lenková \(2021\)](#), the Slovak government measures related to COVID-19 caused a decrease in physical activities and walking time, but an increase in the weekly sitting time of university students. Therefore, it was recommended to develop special online exercises and individual movement programs and strategies to change the approach towards future physical education by sports professionals ([Behrens et al. 2022](#)). As observed by [Pišot et al. \(2020\)](#), COVID-19 actions, including precautionary or restrictive measures, caused a decrease in daily walking and sports activities and an increase in sleeping hours and physical inactivity of people in European countries.

2.4. Crisis Management and Its Strategies Suitable for Sports Economics

The importance of crisis management to finding solutions to the COVID-19 pandemic and similar crises is significant. It is an approach involving solving problems that can be beneficial for managers of various types of organizations. [Haupt \(2021\)](#) investigated the use and impact of crisis communication strategies in emergency management. Communication problems occurring highlighted the need for organizations' managers to understand how critical information is collected, disseminated, and adapted. As a result, the importance of emergency managers, who should be involved in decision-making and policymaking, was highlighted. The application of crisis communication strategies should occur regularly, be discussed with community partners, and be adapted to the type of crisis. Promnil and Polnyotee focused their research on hotel recovery strategies after the COVID-19 pandemic, using structural equation modeling. The results pointed to the need of strategies for customer relations and service provision ([Promnil and Polnyotee 2023](#)).

Structured crisis management via a deliberately selected strategy is essential in sports as well. Several studies investigated this area. Barrett and Shipway focused on an analysis of the strategies used in the organization of small sports events in the wake of the effects of the COVID-19 pandemic. Via semi-structured interviews, experiences with crisis management were explored and three key types of strategies were defined: (1) diversification of income streams and cost reduction; (2) ensuring a customer-centric approach; (3) supporting entrepreneurial and innovative characteristics ([Barrett and Shipway 2024](#)). Another study focused on investigating FIFA's communication strategies during the pandemic. Content analysis was performed on the organization's press releases and messages on Twitter. The analysis of the management of organizational crisis communication confirmed that proactive planning was implemented and best practice from previous crisis situations was applied. According to the authors, the recommended crisis management strategy for a

sports organization should include four phases: (1) awareness of the crisis's seriousness, (2) promotion of the organization's role, (3) support within the sector, (4) emphasis on broader efforts against the crisis (Manoli and Anagnostou 2023).

Crossan et al. (2024) provide a crisis management perspective geared towards satisfying stakeholder requests. They present a case study from sports, analyzing the RunCzech project for organizing sports events. The authors point to a crisis management strategy involving the organization of new events in partnership with sponsors. An essential prerequisite is the reaction to the changing government restrictions during the crisis. Sadeqi-Arani and Ghahfarokhi focused on evaluating the challenge of sports organizations during the COVID-19 pandemic. The main common feature of the strategies identified was resilience. Specifically, 94 strategies based on the resilience of the sports organization during and after the pandemic were described. Major examples of resilience strategies include: (1) marketing mix management, (2) process management, (3) organizational resource management, and (4) strategic action management (Sadeqi-Arani and Ghahfarokhi 2022).

The examined mortality and economic contraction during past pandemics demonstrate the negative impact of economic decline on the country's GDP, which includes the sports sector (Barro et al. 2020). McKibbin and Fernando (2020) focused on the economic impacts of the COVID-19 pandemic as well. The uncertainty accompanying this crisis made it difficult for politicians to form an appropriate macroeconomic policy. In their research, the authors studied the impact of different scenarios on macroeconomic results and financial markets. The results confirm that even a limited crisis outbreak can significantly affect the global economy in the short term. The specific scenarios considered show the extent of the costs of managing the pandemic that can be avoided via greater investment in public health systems.

2.5. Defining Research Hypotheses Following the Findings Resulting from the Literature Analyzed

Based on all three parts of the theoretical background analyzed, research hypotheses were stated. All conclusions oriented towards anti-pandemic measures in the sports sector, as well as sports organizations and natural persons operating in this area were considered. The research hypotheses were formulated as follows:

- H1a: The effect of sports entities losing a specific type of income due to the COVID-19 pandemic depends on the sport the entity is engaged in;
- H1b: The effect of sports entities losing a specific type of income due to the COVID-19 pandemic depends on the type of the sports entity;
- H2: Entities losing a specific type of income due to the COVID-19 pandemic expect a higher total loss of income;
- H3a: The amount of expected loss of income due to the COVID-19 pandemic differs depending on the type of sport the entities are engaged in;
- H3b: The amount of expected loss of income due to the COVID-19 pandemic differs depending on the type of the sports entity;
- H4a: The application of a specific measure to minimize costs in connection with the impact of the COVID-19 pandemic by sports entities depends on the sport the entity is engaged in;
- H4b: The application of a specific measure to minimize costs in connection with the impact of the COVID-19 pandemic by the sports entities depends on the type of sports entity.

The variables resulting from the established hypotheses will be described in detail in the Section 3. Their labels, names, and meanings will be explained there.

3. Methodology

Our research aims to investigate the impacts of measures against the COVID-19 pandemic on the sports industry in Slovakia and to answer a fundamental question: What is the effect of the government's measures on the sports sector in Slovakia?

3.1. Data and Methods

The purpose of this study is to explore the impact of the COVID-19 pandemic on sports community in Slovakia. Specifically, we were interested in understanding how sports professionals and sports organizations responded to the pandemic and what effects the government's measures had on Slovakia's sports industry and its economics. To find the answers to the research questions, a survey was conducted in the form of two online questionnaires, which were available during March and April 2020. The main coordinator of the questionnaire survey was an NGO focused on sports and related issues (specifically it was Učená právnická spoločnosť, o.z.) that the authors closely cooperate with. Questionnaires were distributed in the online environment on the websites of selected NGOs and sports associations operating in Slovakia.

To investigate the subject area, multiple methods and techniques were used, such as:

- Analysis of theoretical background;
- Content analysis (which was used, e.g., in the study by [Manoli and Anagnostou 2023](#));
- Sociological inquiry in the form of questionnaire surveys;
- Analysis of the distribution of variables;
- Relevant statistical tests to verify the validity of hypotheses (chi-square test);
- Deduction, induction, synthesis.

To support the appropriateness of the data collection via questionnaire survey within the topic studied, the following studies were considered. [Goto et al. \(2024\)](#) used a questionnaire survey aimed at sports doctors. Using this method, they were able to obtain information about the challenges that this group faces at work. Furthermore, the questionnaire method was used in an analysis of sports practices in France ([Cubizolles and Viale 2024](#)), and in an evaluation of coaching behavior adapted to adult athletes ([Motz et al. 2023](#)).

3.2. Questionnaire Surveys

The first questionnaire was designed for individuals, such as athletes, coaches, and sports professionals. The second questionnaire was intended for legal entities—sports organizations, such as clubs or associations. Questionnaires were distributed and shared using the sports portals of sports clubs and organizations focusing on sports issues in Slovakia. The final sample consisted of 1666 respondents of which 626 respondents were legal entities (operating in 66 sports) and 1040 were individuals engaged in sports, such as athletes, coaches, sports managers, sports experts, and other sports professionals, performing their activities across 54 sports. The collected data were analyzed using the SPSS software (version v27) and MS Excel (version Microsoft 365).

Approximation was used to determine the population based on the current information accessible via the [Slovak Sports Portal \(2024\)](#). This portal systematically captures the number of legal entities and natural persons in sports in Slovakia. Legal entities are captured within the structure of national sports associations and other sports clubs. Natural persons are divided into athletes and sports experts. Based on the available data, the population for the questionnaire survey focused on sports organizations was set at approximately 6200 entities. This set a representative sample size of 362 at a confidence interval of 95%. For a questionnaire survey focused on natural persons in sports, the population represents an estimated 400,000 individuals. In this case, under the same conditions, the representative sample is 384 persons. Since both collected research samples were well above the set limits, this strongly supports the explanatory value of the results. Subjects involved were selected by random sampling. The total number of registered sports in Slovakia is around 80; the majority of these sports were represented by respondents in both surveys, providing another argument in favor of the overall validity.

To fulfil the partial research objectives, we focused on selected parts of the questionnaire survey. For the analysis, five specific questions were selected from the first questionnaire survey (focused on natural persons). These are listed in Table 1.

Table 1. Specification of selected survey questions.

Label	Text of Selected Questions from the Questionnaire Survey (Focus on Natural Persons)
Q1	Enter the name of the national sports association or the sports association to which you belong as a natural person (e.g., Slovak Handball Association, Slovak Athletic Association, Slovak Football Association, etc.). If you do not belong to any association, state “unorganized sport”.
Q2	In what position in sports do you work as a natural person?
Q3	What is your main type of income?
Q4	If you will not be able to carry out your activity in sports in the next three months (1 April–30 June 2020), what is the total financial loss you expect for these three months together (state the loss of your net income)?
Q5	What measures to minimize costs and to improve your (economic) situation have you taken so far, or are you planning to take?

To achieve a comprehensive insight on the important actors of the sports environment in the conducted research, related, relevantly formulated questions were selected from the second questionnaire survey focused on sports organizations. These included comparable variables, which are detailed in the next section of the methodology. Following the research objectives, selected questions from the questionnaire survey, and considering the defined research hypotheses, the variables for statistical testing were determined.

The reliability of our methodology suggests that other attempts using the same procedure would lead to the same results. In our case this is supported for the data collection process as well as for the subsequent data analysis. The first argument in favor of our study’s reliability stems from the questionnaires being created based on other relevant studies conducted specifically in the sports environment. The second argument is the collection of actual samples that were considerably greater than the representativeness threshold. A further argument is the inclusion of a distribution analysis as a step preceding the statistical test of independence. A final argument is the consideration of type I and II errors in relation to the chi-square test. This is described in more detail later in this section.

3.3. Description of the Variables Tested

In the analysis of data obtained via questionnaire surveys, specific variables were examined. These were selected depending on the defined research hypotheses (described in the theoretical background). The five variables examined included the following: (V1) type of income; (V2) type of sport; (V3) type of sports entity; (V4) expected loss of income; (V5) measures to minimize costs and improve the economic situation. A more detailed specification of the selected variables with their connection to a specific hypothesis is presented in Table 2.

Table 2. Specification of variables and their relation to hypotheses.

Hypotheses	Variables	Label
H1a	Type of income—category representing the primary source of income of a sports entity.	V1
	Type of sport—a sport recognized by law, which the entity focuses on primarily.	V2
H1b	Type of income—category representing the primary source of income of a sports entity.	V1
	Type of sports entity—depends on the status of a natural person/legal entity; in the case of legal entities, these are sports clubs, civic associations, sports agencies, and others; in the case of natural persons, these are sports experts, coaches, instructors of children and youth.	V3

Table 2. Cont.

Hypotheses	Variables	Label
H2	Type of income—category representing the primary source of income of a sports entity.	V1
	Expected loss of income—category representing the interval of the expected amount of loss of income.	V4
H3a	Expected loss of income—category representing the interval of the expected amount of loss of income.	V4
	Type of sport—a sport recognized by law, which the entity focuses on primarily.	V2
H3b	Expected loss of income—category representing the interval of the expected amount of loss of income.	V4
	Type of sports entity—depends on the status of a natural person/legal entity; in the case of legal entities, these are sports clubs, civic associations, sports agencies, and others; in the case of natural persons, these are sports experts, coaches, instructors of children and youth.	V3
H4a	Type of sport—a sport recognized by law, which the entity focuses on primarily.	V2
	Measure to minimize costs and improve the economic situation—the type of measure the entity has taken or plans to take at the time of the inquiry to increase financial sustainability during the crisis.	V5
H4b	Type of sports entity—depends on the status of a natural person/legal entity; in the case of legal entities, these are sports clubs, civic associations, sports agencies, and others; in the case of natural persons, these are sports experts, coaches, instructors of children and youth.	V3
	Measure to minimize costs and improve the economic situation—the type of measure the entity has taken or plans to take at the time of the inquiry to increase financial sustainability during the crisis.	V5

The presented variables were further analyzed. Before applying the statistical tests, it was necessary to perform the adjustments described in the following subsection.

3.4. Data Handling—Focusing on the Substantial Categories in the Surveys' Responses and the Statistical Method for Hypotheses' Verification

Hypothesis testing was always performed on two different sets of data, which follows the structure of the questionnaire surveys. Each of the hypotheses was formed to detect statistical deviations between the categories of two variables. The hypotheses were designed to provide new information on the behavior of different types of entities during the COVID-19 pandemic.

In some questions of the questionnaire surveys, there were too many different categories in the responses. That is why an analysis of the distribution of variables was performed first. From the individual categories, the most frequent were selected. The aim of this step was to narrow the focus on the data to increase the accuracy of the statistical test results.

Table 3 shows the variables that were affected by the narrowing of the analytical focus due to too many categories present in the responses. The table also captures the selected most frequent categories for natural persons and legal entities. If the chi-square statistical test included a narrowed variable, the frequencies in the contingency table were recalculated only using values 0 and 1. Value 0 represented the state when “the respondent did not choose the given option in the questionnaire” and value 1 was used where “the respondent chose the given option in the questionnaire”. As a result of the adjustment made, the application of the chi-square test could be more prone to false acceptance of the alternative hypothesis (type I error). A false positive test result may have occurred. However, if such adjustment did not occur, a type II error (a false negative result) could occur in the entire analysis. However, the resulting *p*-values in the case of natural persons were often significantly lower than the set limit of 0.05. This indicates sufficient compensation for the increased risk of a type I error. Also, the proportional distribution between the two categories was balanced.

Table 3. Areas of narrowing the analytical focus.

Narrowing Area	Natural Persons	Legal Entities
Type of income	compensation for loss of time and other volunteer services	income from organizing sports events (e.g., starting/entrance fees to competitions)
Measure to minimize the costs	securing other sources of income outside sports	reduction in personnel costs for sports professionals
Type of sports entity	sports expert, trainer, instructor of children, and youth	no narrowing was performed within the given variable

Fruchart and Rulence-Paques (2021) applied the chi-square test to analyze data related to the attitudes of amateur athletes. This type of test in sports was also used by Chu et al. (2022) and Coutinho et al. (2023). Based on these references, it is possible to consider the choice of this statistical procedure as justified in our study for the purpose of verifying the set research hypotheses.

In the next part, the results associated with the analyzed variables are evaluated. Summary results are presented for an overview of the situation. Subsequently, relevant mathematical-statistical methods are applied, allowing to examine the links between the defined variables within the hypotheses set.

4. Results

The results of the conducted research and their interpretation refer to the analysis of data obtained from two questionnaire surveys, which included the pre-defined research variables. These questionnaires were aimed at two significant groups of sports entities—natural persons and legal entities.

Natural persons and legal entities in the context of sports management can form different business models. The questions in the questionnaire were, therefore, divided into two separate units. One questionnaire was adapted for enquiring of natural persons, the other for enquiring of legal entities. However, both questionnaires were structured in a unified way. The questions in both surveys were comparable, aiming at the same goal. Natural persons included, e.g., amateur athletes, sports referees, trainers, instructors, etc. Legal entities included sports clubs, civic associations, national sports associations, and others.

After the necessary narrowing of the focus on essential results within the variables analyzed, it was possible to apply both basic and advanced statistical methods; the results are structured and arranged accordingly in the next sections.

4.1. Questionnaire for Individuals—Descriptive Statistics

For 48.5% of all respondents, income from sports activities constituted either the only or primary source of total income. The largest group in the sample of individuals, “coaches of adults or youth”, made up 53% of respondents. Therefore, this group was set as a primary group of individuals, as will be explained later in the article. Athletes (professional, talented, recreational) made up 37.8% of respondents. More than 80% of the respondents had to cancel their presence at competitions and they also had to cancel their training activities in sports facilities due to the pandemic. Additionally, 48% of them also stopped their training activities outside the sports facility. Since these groups were numerous, it is not surprising that it also resulted in the expectation of respondents to cancel or at least partially cancel the ban imposed on sports and to open selected sports venues in accordance with hygiene measures.

Table 4 shows the distribution of respondents with respect to their reaction to the situation caused by the pandemic. As the table shows, 34.19% of respondents planned to improve their financial situation by securing other sources of income outside sports. Moreover, 27.93% of respondents sought to temporarily suspend their sports activities under the condition of partial compensation from the state while COVID-19 measures

lasted. Another group, 26.58%, sought to temporarily suspend their sports activities during COVID-19 measures while accepting a temporary reduction in remuneration. Only 6.67% of respondents planned to end their sports activities permanently without considering returning in the future.

Table 4. Distribution of individual respondents and their reactions to the situation caused by the pandemic.

	Reduction in Salary		Compensation from the State		Leaving Sports		Finding Other Resources		Doing Nothing	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Referees	47	19.18	54	22.04	9	3.67	117	47.76	18	7.35
Coaches (children and youth)	146	26.74	170	31.14	21	3.85	181	33.15	28	5.13
Coaches (adult)	98	28.41	107	31.01	17	4.93	104	30.14	19	5.51
Sport Managers	93	31.10	70	23.41	14	4.68	93	31.10	29	9.70
Professional athletes	35	24.48	58	40.56	9	6.29	37	25.87	4	2.80
Recreational athletes	7	25.00	2	7.14	2	7.14	12	42.86	5	17.86
Talented athletes	12	26.67	8	17.78	5	11.11	16	35.56	4	8.89
Sport experts	12	31.58	6	15.79	1	2.63	15	39.47	4	10.53
Others	4	21.05	2	10.53	1	5.26	9	47.37	3	15.79

The average expected remuneration loss for respondents in the event of a loss of income for three months (April 2020–June 2020) after taxes and deductions was mostly up to EUR 500 (27.98% of cases). Another group, 26.35%, expected their loss of remuneration to be up to EUR 2000. A total of 22.02% had even more pessimistic expectations and they expected their loss of remuneration to be as high as EUR 5000, while 1.25% were the most pessimistic, expecting the losses to be up to EUR 15,000. This reflects the fact that individuals expected at least partial compensation from the state for their income, assuming that this was only a temporary situation. A more comprehensive breakdown of expected income losses is shown in Figure 1.

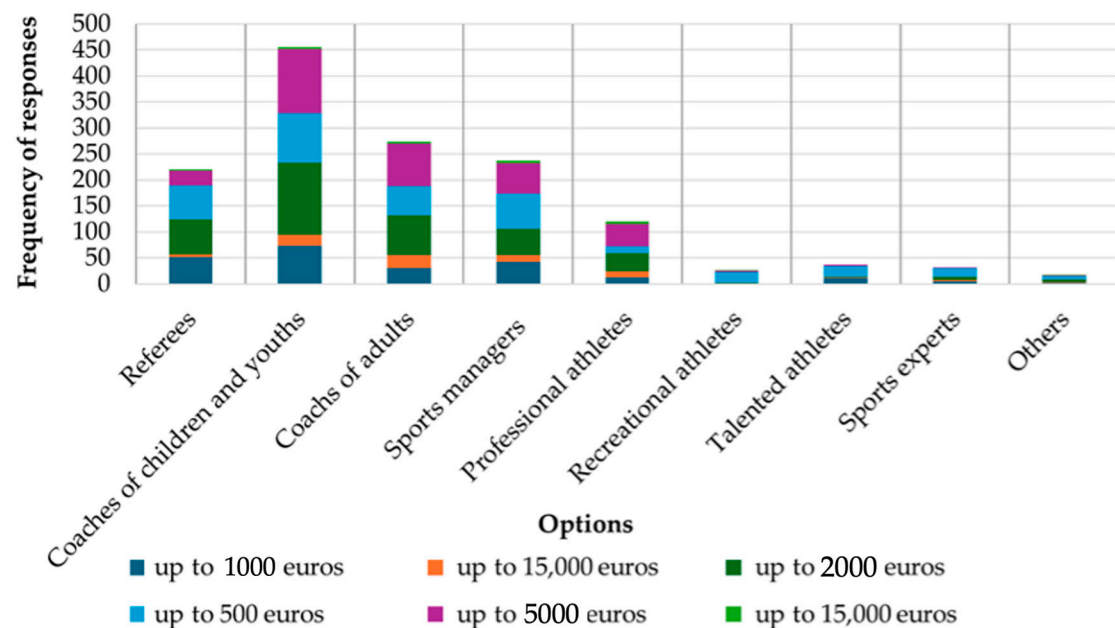


Figure 1. Expected income losses.

The results of the survey of legal entities were evaluated similarly to the evaluation of the results connected to natural persons. These are described in the next subsection.

4.2. Questionnaire for Sports Organizations—Descriptive Statistics

Income from sports activities was the only or the main source of income for up to 67% of sports organizations. The most numerous group (84%) were sports clubs, and the most numerous legal form (86%) were civic associations. This indicates that the sports sector in the Slovak Republic consists mainly of sports clubs often run by volunteers and then of professional sports clubs based on the business system. It should be noted that Slovak clubs often have athletes in all age groups. Therefore, local governments can subsidize them.

More than 90% of sports organizations had to cancel a competition or a training activity in a sports facility due to the coronavirus pandemic. More than 55% of entities also cancelled training outside sports facilities or their promotional activities. Meetings of sports organizations' official bodies, project activities, and educational activities were also suspended.

In addition to income from entry fees and income from athletes (fees) or their parents, 58% of respondents included subsidies and activity grants among the income they lost. This is probably in most cases in the form of financial support received from national sports associations or local government. The average expected loss of income over three months (from April to June 2020) was EUR 16,248. As the contributions for national sports associations by the Ministry of Education were not reduced in 2020 and it was possible to expand the purpose of their use, this part of the funds should have remained stable for clubs or associations trying to cope with the effects of the pandemic.

In addition to these amounts, sports organizations reported outstanding overdue liabilities averaging EUR 5767 as of 1 March 2020, which in the normal course of operation they would pay from their income, but now had lost due to the pandemic. The most common action sports organizations planned to take was to reduce staff costs stemming from the remuneration for coaches (52%), other staff (43%), and athletes (35%).

By implementing these austerity measures, sports organizations planned to save an average of EUR 5750 from April till June 2020. Due to the cancellation of planned sports activities (including overheads, energy, advertising, travel, accommodation, goods and services), organizations expected an average saving of another EUR 5535. The real loss in income of a sports organization for the period from April till June 2020 amounted to an average of EUR 4963. According to the data, we can conclude that sports clubs based on volunteers were not as endangered, as they incur minimal costs in times of crisis. However, this applies provided that the clubs were able to compensate part of the revenue shortfall from the state and did not have excessive costs associated with their own or leased sports infrastructure. With financial contributions from sports associations, the clubs would not ultimately be in existential danger. Exceptions occurred for professional clubs, whose main income was from transfers of players and capital from their owners.

4.3. Hypotheses' Evaluation

For the interpretation of the results, it is appropriate to briefly describe the essence of the chi-square test. It is a test of mutual dependence of two categorical variables processed into a contingency table. If the resulting *p*-value is low enough, it represents enough collected evidence to confirm a statistically significant relationship, or dependencies between the analyzed variables. The test points to correlation, not causation. This means that it is not possible to express with certainty the direction of dependence based only on the test's numerical results.

In the case of the survey focused on natural persons, there was an information reduction in the category "type of sports entity". This is the type of profession that the individual pursued in the sports industry. There were too many categories for the given question, which would have compromised the accuracy of the chi-square test results. Therefore, the categories were reduced to the most common profession (sports expert, trainer, instructor of children and youth). The reduction had an impact on the results' interpretation.

4.3.1. Summary Results of Hypotheses' Verification

Based on Table 2 in Section 3.3, mathematical and statistical methods were applied to verify the validity of the defined hypotheses. The results of the verification tests of individual hypotheses are shown in Table 5 below. This contains p -values resulting from chi-square tests performed on the data collected. Values are divided according to whether they refer to a legal entity or a natural person.

Table 5. Results of chi-square testing (p -value) according to hypotheses and entities.

Hypotheses	Legal Entities p -Value	Natural Persons p -Value
H1a	0.0000047	0.0000000
H1b	0.2498070	0.0203226
H2	0.0012765	0.0000000
H3a	0.5900776	0.0000011
H3b	0.0071857	0.0000029
H4a	0.0564524	0.0128230
H4b	0.4022717	0.0266559

The p -value threshold was set at a standard value of 0.05. If the result of the chi-square test calculated is lower than the set threshold, this means that enough evidence has been collected to confirm the hypothesis (green color in the table). In the context of testing the hypotheses, in that case the individual categories analyzed show statistically significant average differences. If the p -value result is higher than the set p -value threshold, this indicates the lack of collected evidence to confirm the hypothesis (orange color in the table). However, this does not mean that the hypothesis is definitively rejected. This decision needs to be based on a combination of statistical results with the results of other methods.

The green color of the p -value result in Table 5 indicates results that were sufficient to accept the hypothesis. But when confirming hypotheses, it is not just about the threshold itself compared to the result. To accept a hypothesis, a further assessment is necessary as well. There may be cases when the resulting p -value is below the set limit, but we still do not accept the hypothesis. The reasons may vary. Mostly, this results from deep knowledge of the issue, previous research, or from knowing the individual steps that were taken during the collection, processing, and evaluation of data. Therefore, the statistical analysis itself needs to be supported by a scientific interpretation, as will be shown in the following paragraphs.

Based on the fact that all the hypotheses were tested on two samples of data (one representing the situation among the sports organizations and the other among sports individuals), the results that are statistically significant for both samples can be considered crucial. These are the cases indicated by green color in both columns in Table 5. This applies to hypotheses H1a, H2, and H3b. Therefore, it can be concluded that statistically significant results were obtained for the dependence of the lost income due to COVID-19 on the sport type and dependence of the total loss of income on its substantial source. Additionally, this reveals that different types of sports entities expected different levels of income to be lost due to the pandemic.

Overall, the economic implications for the sports industry are related to the income sources most affected by the pandemic. In connection with the knowledge on crisis management presented in the literature review, for the whole sports sector, it is especially important to work on resilience. This strategy can be achieved via diversification of income streams, careful planning and preparation, and the inclusion of a diverse group of stakeholders in the decision-making process. Other specifically designed recommendations are included later, in the Section 6.

4.3.2. Details on the Results of Individual Hypotheses' Verification

When verifying the hypothesis H1a, a statistically significant relationship was found between the most significant type of income of sports organizations (legal entities) from

organizing sports events (V1) (e.g., starting/entrance fees to competitions, etc.) and the type of sport the organization primarily engages in (V2). Thus, it can be deduced that sports organizations lost this source of income during the pandemic to varying degrees, depending on the sport type. It cannot be argued that all sports organizations were in the same situation. When interpreting the results regarding natural persons (individuals), the dependence between their most significant income, which was compensation for the loss of time and other volunteer services, and the sport that the individual does was confirmed. Overall, it can be concluded that the impact on the income of different sports organizations and individuals was different depending on the sport type.

The hypothesis H1b also concerned the relationship between the most important type of legal entities' or natural persons' income (V1). The second variable is represented by the type of sports entity (V3). In the case of legal entities, the relationship between the income from organizing sports events (e.g., starting/entrance fees to competitions, etc.) and the type of sports organization (legal form) was not confirmed. This relationship was confirmed in the case of natural persons, which means that some types of professional focus of individuals did not result in income losses. And thus, different occupations had different rates of loss of the specified income. This statement is valid with regard to the comparison between the most common occupation category—sports expert, coach, instructor of children and youth—with other sports occupations.

The hypothesis H2 is not further divided into two parts. Therefore, the relationship was analyzed in relation to only one variable—the expectation of the total income loss (V4). This was examined according to the most frequent type of expected loss of income of organizations or individuals, which the respondents indicated. The perception of the expected amount of income loss can be explained from the respondents' perspective as a description of their prospects for the future. They could describe them more positively or negatively. In the context of the chi-square test, it can be confirmed that the amount of the expected loss of total income depended on whether sports organizations were most afraid of the loss of income from organizing sports events. In the case of natural persons, the answer of the respondents depended on whether they were most worried about the loss of compensation for the loss of time and other compensation for volunteers.

When verifying the hypothesis H3a, in relation to the data from the questionnaire aimed at legal entities, the relationship between the expected loss of total income (V4) and the type of sport (V2) was not confirmed, i.e., different sports did not bring different expectations of the amount of income loss. In comparison, in the case of natural persons, such a relationship was confirmed. Different individuals expected different amounts of income loss depending on the sport they were engaged in.

In the case of hypothesis H3b, the same labeling logic was applied as in the case of H1a vs. H1b. The relationship between the expected amount of total revenue loss (V4) and the type of sports entity (V3) (organization or profession performed by individuals) was examined. Here, the relationship between natural persons and legal entities was confirmed. Different types of sports organizations and different professions of individuals were related to expectations of the amount of revenue loss due to the COVID-19 pandemic. It can, therefore, be argued that the type of entity involves a different strategic setting, differently susceptible to changes in the environment. Different professions in the field of sports (e.g., athlete, coach, physiotherapist, etc.) have different and specific work settings, which resulted in different expectations of the income loss due to the pandemic.

Hypothesis H4a assumes a relationship between whether a sports organization has applied the most common cost minimization measure (V5) and the type of sport (V2) the organization is engaged in. The most common measure is the reduction in personnel costs for sports professionals. This relationship was not confirmed for legal entities. Not enough evidence was collected that entities behave differently within different sports. Thus, they did not pursue the simplest form of cost minimization in varying degrees. In comparison, this relationship was confirmed for natural persons. The most common type of cost minimization was securing other sources of income outside sports. Sports professionals

found income from other activities, but this depended on the sport the individual was involved in. Some sports professionals did not pursue this measure.

A similar trend can be observed when verifying the validity of H4b, where the relationship between the type of sports entity (V3) and the effort to reduce the personnel costs of sports professionals (V5) was not confirmed for legal entities. For natural persons, this relationship was confirmed again. If the individuals worked within a specific profession, e.g., coach/instructor of children and youth, then they decided in a different way whether it was necessary to find income from other sources, compared to other professions involved in the survey.

4.3.3. Summarizing the Main Findings from the Hypothesis Testing

Finally, the findings can be summarized in the following way. Statistically significant different behavior was observed in the case of individuals, depending on whether they were coaches/instructors of children and youth, or other professionals (e.g., athletes). As the original number of categories related to individuals' professions (natural persons) could distort the results, an analysis of the distribution of variables was performed. Subsequently, the categories with the most representation were examined. The interpretation of the results is, therefore, limited to the mentioned two categories.

Based on the results achieved, it can be concluded that the coaches/instructors of children and youth had different expectations of income losses and took different steps to compensate for the loss of income from sports. Different sports also led to statistically different results for individuals included in the survey.

In the case of sports organizations (legal entities), the results did not lead to as frequent statistically significant differences between categories as in the case of individuals. For example, different types of legal entities did not show different approaches to cost minimization. However, evaluating the amount of the expected loss of income due to the COVID-19 pandemic depended significantly on the sport the organization was engaged in. All these essential findings of our research are further related to the international context by comparison with the results of other studies. Finally, by linking our own results with comparison with the results of other researchers, important recommendations are drawn for policymakers focused on the economic aspects of the operation of the entire sports system.

5. Discussion

The increased interest in the survey among coaches is not accidental and from their answers, it is clear that they are one of the most vulnerable groups of professionals in sports. However, coaches are a basic pillar of Slovak sports and athletic youth, and, therefore, we cannot afford to lose them. [Hallmann et al. \(2022\)](#) emphasize, in particular, the psychological interconnection of these entities in relation to the level of their involvement.

The ban on the organization of mass events including sports-related ones and the operation of sports facilities significantly affected sports organizations, paralyzing their activities. This does not mean that sports organizations did not continue to incur costs for their maintenance and operation. Respondents mainly expected the following support from the government: refinement and individualization of prohibitions and restrictions, financial support, and reduction or abolition of rent payments. The ecosystem of sports in Slovakia is mostly non-profit; therefore, it is highly sensitive to proper help from the state during crises such as that caused by the pandemic. The differences in state support of businesses and the operation of various organizations are considerable, reflecting the cultural and economic specifics of a given country ([Varmus et al. 2018](#); [Brandt et al. 2021](#)). Respondents of our surveys expected the sports sector (especially national sports associations) to maintain and not interrupt existing financial support, to reduce fees in connection with sports competitions, to improve communication, and to support coaches and sports professionals.

The expectations of sports organizations and athletes from the government and other public authorities were mainly aimed at refining or lifting and individualizing bans and restrictions, financial support, compensation for the maintenance of their own sports

infrastructure, and the availability of resources from the Sports Support Fund to rehabilitate after the crisis. The legislative initiatives were measures to release existing funds, as well as proposals for measures aimed at increasing future revenues in sports, whether from gambling revenues or tax relief for sponsors or reducing VAT on sports, while the last group of proposals concerned simplification of administration under the existing laws on sports. An important insight within the discussion is looking at how other countries approached the COVID-19 pandemic and analyzing its impacts. We need to focus on different approaches of other countries in relation to the pandemic and the field of sports, which can be compared with the situation examined in Slovakia.

Smokvina and Smokvina analyzed the impact of the COVID-19 crisis on professional sports in Croatia. Football was approached as a stepping-stone for other team sports as well, due to its high representation by professional sports clubs in the country. The authors consider the COVID-19 crisis and its detailed analysis to provide a background for better regulation and economic support of Croatian sports in the future (Smokvina and Smokvina 2021).

The impact of the COVID-19 pandemic revealed the lack of preparedness of administrators and policymakers for crisis management and the lack of mental preparation of athletes, coaches, and support staff themselves. Recommendations for sports administrators include creating thriving mental health via mental skills and regular, structured, and comprehensive training of mental skills and life skills with a professional coach (Yaacoub and McInman 2023).

An analysis of the Brazilian federal government's approach to tax incentive laws that should boost the economic activity of companies after the COVID-19 pandemic has drawn several conclusions. Due to the pandemic, six federal standards introduced in March 2020 were changed by December 2021. These included the Sports Incentive Law. There was no institution of tax incentives to help companies maintain their cash flow, improve socio-economic activities, or mitigate the effects of the COVID-19 pandemic before (Manguelly et al. 2023).

An amendment to the Sports Act according to the requirements of sports entities (MESRS 2020) was adopted at the beginning of June 2020. Rules for the purposes of using financial support for sports associations were defined based on calculation of the distribution of financial support among recognized sports associations from 2020 to 2021, including support for the best athletes. Some deadlines were postponed which sports organizations could not meet straightforwardly during the emergency period. This was the only request from the survey that was met by the state authorities. The Ministry of Education continuously worked on a broader amendment to the Sports Act, where one of the aims was to reduce the administrative burden for sports entities (the efforts continue under the auspices of the Ministry of Tourism and Sports). The government measures connected to the COVID-19 pandemic had strong effects on the whole economy, including the sports sector. As evidenced by Ibrahim et al. (2020), they had serious consequences for the volatility of markets. This is why it is so important to incorporate all the lessons learnt from the crisis period in the preparation of new policies with regard to economic consequences.

Until December 2020, sports entities could only use the same support measures as all other business or non-business entities in the Slovak Republic. This was a part of the assistance package from the resources of the Ministry of Labor, Social Affairs and Family for employees, entrepreneurs, self-employed persons and citizens, which was divided into five areas. These included help for the following: employers who had to close their operations based on a decision of the Public Health Office; self-employed persons who had to close their operations based on the decision of the Public Health Office or where their sales decreased by at least 20%; employers who kept jobs even in the case of interruption or reduction in their activities during the declared emergency situation; self-employed persons and limited liability companies (with one person) that did not have other income; and citizens who found themselves in a crisis situation without income during the coronavirus pandemic.

The results of other research show that economic stimuli packages are helping to improve tourism after the COVID-19 pandemic. However, the speed and effectiveness of recovery depend on the country's level of resilience. Less resilient countries are more supported by these packages. The influence gradually decreases as the resilience of the country increases. These findings have important implications for policymakers focusing on new policies and their economic effects worldwide (Okafor et al. 2022). In response to the pandemic, SMART Recovery Australia has increased the number of online support groups. The availability, acceptability, and sustainability of providing mutual help groups are emphasized (Beck et al. 2023). The focus on mental health of the people affected by the crisis and the process of providing them with training of their mental health skills is thus yet another aspect to consider.

A supportive measure was approved from the resources of the Ministry of Economy of the Slovak Republic to pay a part of the rent for tenants for premises in which the tenant sells goods or provides services to final consumers (Rent Subsidies 2022). Victor et al. (2021) analyzed the consequences of the COVID-19 pandemic for the economies of the United Kingdom and India. Their findings show that both economies experienced similar recessive impacts. They recommended creating restoration plan that would help the economies to overcome stagflation. The state's support in the crisis needs to be designed in a way that leads to restoration in the shortest time possible. However, this can be achieved only if all the data available are analyzed sufficiently, not only via research, but also using information systems deployed and new technologies, such as Big Data analytics (Koman et al. 2018).

The COVID-19 pandemic also caused considerable changes in how investors make their decisions on providing funds, basing this on a different set of criteria (Rodionov et al. 2021). Therefore, it is only logical that governmental decisions adapt to the changes and are flexible enough during periods of future crises so that their effectiveness is enhanced. It was not until September 2020 that Slovak government officials first publicly mentioned the intended measures to support sports, covering support for sports organizations, compensation for lost revenue from sporting events' fees, and support for operators of sports facilities.

The following restrictive measures applied from October 2020, based on which it was practically impossible to organize any sporting events, provoked negative reactions in the sports environment. The president of the Slovak Football Association (SFA) stated (Statement of SFA and ULC 2020) that the ban on football matches would have a devastating effect on the membership base of the association (more than 100,000 members) and on 14,000 people who were employed in Slovak football. Negative impacts of interrupting the organizations' business activities were also confirmed by a survey conducted in the Philippines (Yu et al. 2020), emphasizing that findings from research around the world need to be applied to better prepare for future crises via more suitable economic policies. Within the sports sector, the restrictive measures affected not only professional football, but also the area of youth and amateur football. The president of the SFA urged the suspension of the measures until their economic and social impacts were considered, as well as the manner and amount of the immediate compensation to all parties concerned. He also called for a constructive dialogue directly with government representatives (Statement of SFA and ULC 2020). This is an important point that should be included in the management of future crises as well. Swift and unobstructed communication with the entities affected is crucial for the effective setting of any measures and new policies. After media pressure, the government withdrew some of the restrictions and allowed sports events for up to 50 people, including the organizers. This is evidence that the influence of sports organizations in the media is important and when developed continuously can be beneficial for them even in the time of various crisis situations (Adámik et al. 2017).

6. Conclusions

Research focused on the COVID-19 pandemic and its consequences has evolved over time and will still need to be continued to show the real impacts of the measures applied

on the long-term operation of specific entities. In this study, we focused on the situation and the impacts on the sports sector in Slovakia. This is still relevant now because of the political changes connected to the creation of the new ministry responsible for sports affairs. It will be useful to repeat the survey so that we can compare the previous expectations and real impacts and their consequences for the long-term operation of the sports entities and their economic sustainability. The results of this study contribute to worldwide research into the implications of various measures and policies with economic effects for sports and other sectors of the world economy. While in the spring of 2020, we talked about the sustainability and competitiveness of Slovak sports on a global scale, during the periods of crises, talk is often about the very survival of professional sports at all.

The key results of this study can be summarized in the following points: lost income due to COVID-19 depended on the sport type; the total loss of income depended on its substantial source; expected levels of income lost due to the pandemic depended on the sport's entities type. All these findings were verified for both sports organizations and sports individuals. Our recommendations for sports managers and policymakers consider these key findings and combine them with best practice identified in the literature review on crisis management.

There is a clear need to engage in dialogue with the sports community well in advance, before taking political decisions. Insensitive decisions may have devastating economic impacts on the entire sports community. Future sports policies set for crisis situations (other pandemics or other crises with similar consequences) should not be established across the board, expecting that one global solution will fit all entities effected. They should respect the differences that have been identified in this research. Differences were confirmed, e.g., related to natural persons engaged in professional sports. An important aspect identified was that sports professionals (coaches, other professionals) were affected differently by expected loss of income depending on the specific sport. Therefore, the preparation of new sports policies for setting compensation for the economic impacts of crises should respect the detected differences related to specific types of sports.

It is advisable to incorporate differences in the strategic setting of various sports entities into prepared policies. With this statement in mind, the following recommendations for policymakers were formulated:

- create support for the long-term operation of individuals and entire organizations from the perspective of achieving economic sustainability—this can be done via diversification of income streams, closer focus on the sports products' customers, and introduction of new services for them during the crisis that will secure income during the current loss of the regular main income source;
- secure such an amount of income that allows preparation for an unexpected loss of income;
- support education in the field of financial management of individual entities;
- develop sponsoring activities so that individual entities are not fully dependent only on funding from the state or municipalities;
- once a crisis emerges, the information directed towards sports entities needs to be clear and systematic so that it is possible for them to continuously adapt to current developments in the crisis situation.

From the perspective of whether sports organizations or individuals should pursue the forced dismissals of experts, particularly active steps should be taken related to the setting of future sports policies within the competence of the newly created ministry. Since acquiring the necessary expertise and experience of sports experts working with athletes is a demanding and long-term process, their dismissal and transition to other areas must be seen as a highly critical situation.

In connection with the previous recommendations, the strategic setting should also be supported in the following aspects:

- careful planning considering the possible crisis situations can be achieved via the generation of multiple scenarios based on different conditions;

- since management during crises is different from during regular operation, a crisis manager needs to be appointed prior to the crisis itself and he/she needs to be engaged in the preparation of the crisis response;
- the income of sports experts needs to be set in combination with the creation of long-term reserves,
- a sufficient amount of regular remuneration is a necessary precondition for proper preparation against crises;
- continuous state support is still needed during periods of serious unforeseen circumstances;
- stable financial management can only be based on sufficient education in this area;
- the crisis strategy needs to include specific crisis communication, and it also needs to lead to strengthening of the organization's long-term resilience.

Only with this combination will it be possible to avert such serious impacts of possible new crises in the future. For many sports entities, the leaving of key experts is often fatal, or sets them back significantly in their efforts to ensure quality sports services. As a result, the athletes, their future generations, and the fans of the sport will suffer significantly. This is a very serious encroachment on the overall sports infrastructure. With the new setting of related sports policies and their economic impacts, it is necessary to address such a situation in a very targeted manner in connection with the most affected professions. There is a need to strike a balance between helping whole organizations with individualized support for specific professions. This should follow from the results regarding the differences when focusing on specific types of sport.

All the results of the research hypotheses' testing, interpreted in detail in the previous sections, demonstrate the importance and significance of the research conducted. Without it being supported by real data and their appropriate statistical evaluation, it is not possible to set future prepared policies in an effective way. This needs to be a way that will consider the important differences identified and ensure that acute help is primarily provided to the most vulnerable organizations and individuals. If it is possible to prepare future policies designed to solve the economic consequences of occurring crisis situations in an appropriate, targeted way, then the overall economic sustainability of the entire sports system in the country will be clearly supported. Even though some time has passed since the occurrence of the direct impact of the pandemic on the sports industry and sports economy, it is still of the utmost importance to continue with relevant analysis, providing much needed evidence as the basis of newly emerging policies. For the Slovak sports environment, the relevance of such considerations is especially supported by the establishment of the newly formed Ministry of Tourism and Sports this year. Having taken over the agenda of sports at the national level, the representatives need all the support that can be provided by science and research to pursue actions that will help develop this important sector of the country's economy, protecting it from the consequences of any future crises.

The limitations of this study are connected to the methods applied to collect and analyze the data. Thus, they include potential differences in the opinions of possible respondents who did not participate in the surveys. However, this is mitigated by the research samples being well above the required representativeness level in both surveys. The process of data handling is another source of limitations, as explained in the Section 3. Since the surveys were focused on the situation experienced by Slovak sports organizations and sports individuals, generalization of the results is slightly limited as well. Firstly, the results are relevant for the Slovak Republic. In the second round, after the identification of substantial similarities in the selected sports systems, they can be transferred to other countries as well. The readiness or lack of it among sports organizations and their managers and policymakers to create and implement crisis strategies for managing such situations can be seen as a certain limitation too. A final limitation is the statistical testing applied for hypotheses' testing, with the option of testing for dependence of the variables only.

Future directions for following research include comparative analysis of political changes related to economic policies specifically oriented towards sports in selected coun-

tries. They also include critical assessment of improvements in the readiness for future imminent crises affecting sports in relation to their negative economic impacts within selected sports systems. Policymakers should focus on defining lessons learned from previous crises. In this way, setting measures in future crises will be even more effective. Managers of sports organizations should identify stakeholders with whom they can cooperate in planning but also in managing a potential future crisis. All these points simultaneously represent promising objectives for future research projects.

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