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WSTĘP

W 2026 r. periodyk „Sport i Turystyka. Środkowoeuropejskie Czasopismo Naukowe" ukazuje się dziewiąty rok. Jest kontynuacją tytułu „Prace Naukowe Akademii im. Jana Długosza w Częstochowie Kultura Fizyczna". W czwartym numerze zostały zaprezentowane prace Autorów z różnych ośrodków naukowych w Polsce i na świecie.

W części I – *Dzieje kultury fizycznej i turystyki w Polsce i na świecie* przedstawiono artykuły dotyczące następującej problematyki:

— turystyka zdrowotna w Polsce międzywojennej: studium uzdrowisk balneologicznych w województwach lwowskim, wołyńskim i tarnopolskim;
— Czechosłowacki Związek Wychowania Fizycznego: Centralna czechosłowacka organizacja wychowania fizycznego w latach 1946–1948;
— polskie osiągnięcia w sportach walki na nowożytnych igrzyskach olimpijskich i ich pozycja na tle innych krajów Europy Środkowo-Wschodniej.

W części II zatytułowanej *Teoria i metodyka wychowania fizycznego i sportu* przedstawiono dwa artykuły dotyczące zagadnień:

— adaptacji fizjologicznych i funkcjonalnego treningu interwałowego o wysokiej intensywności na dwóch wysokościach u biegaczy wytrzymałościowych uprawiających sporty wytrzymałościowe na średnich wysokościach: randomizowane badanie kontrolowane;
— zróżnicowanego szkolenia i jego wpływu na stan funkcjonalny układu sercowo-naczyniowego oraz poziom rozwoju wytrzymałości u uczniów w wieku 13–15 lat.

W części III – *Turystyka i Rekreacja* – ukazano trzy artykuły odnoszące się do następującej tematyki:

— cyfrowa turystyka donatorska: katalizator odporności obszarów wiejskich i zrównoważonego rozwoju na Ukrainie powojennej;
— znaczenie innowacji w przemyśle spa w Czechach i na Słowacji: Era COVID-19 i później;
— zagospodarowanie turystyczne i rekreacyjne w powiecie częstochowskim (ziemskim) – zarys problematyki.

W części *Biogramy, dyskusje, polemiki, recenzje, przegląd wydawnictw, sprawozdania* został opublikowany artykuł pt. *Od 1997 roku do dziś: Przeszłość, teraźniejszość i przyszłość czasopisma Sport i Turystyka* poświęcony czasopismu naukowemu „Sport i Turystyka. Środkowoeuropejskie Czasopismo Naukowe".

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Część I

Dzieje kultury fizycznej i turystyki w Polsce i na świecie

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Włodzimierz GAŃSKI*, Mariya FLEYCHUK**

HEALTH TOURISM IN INTERWAR POLAND: A STUDY OF BALNEOLOGICAL RESORTS IN LWÓW, WOŁYŃ, AND TARNOPOL VOIVODESHIPS

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Turystyka zdrowotna w Polsce międzywojennej: studium uzdrowisk balneologicznych w województwach lwowskim, wołyńskim i tarnopolskim

Streszczenie

Celem pracy jest analiza rozwoju uzdrowisk i turystyki zdrowotnej w Polsce w okresie międzywojennym, ze szczególnym uwzględnieniem uzdrowisk balneologicznych położonych w województwach lwowskim, wołyńskim i tarnopolskim. Badanie opiera się na metodzie historycznej, która umożliwia śledzenie głównych etapów rozwoju infrastruktury uzdrowiskowej, specjalizacji medycznych tych uzdrowisk oraz stosowanych metod leczenia, a także pozwala na identyfikację dominujących trendów w organizacji turystyki i wypoczynku w tych uzdrowiskach. Po raz pierwszy w artykule przedstawione zostało systematyczne zestawienie informacji dotyczących uzdrowisk z wymienionych województw, obejmujące ich cechy medyczne, dostępne metody leczenia, poziom i rodzaj infrastruktury noclegowej, a także dane na temat frekwencji, cen oraz przepływów turystycznych. Szczególną uwagę poświęcono roli balneologicznych metod leczenia w terapii chorób, a także procesowi regeneracji zdrowia. Ponadto w pracy uwzględniono aspekty kulturalne i rekreacyjne, które przyciągały turystów do tych uzdrowisk, takie jak organizowane wydarzenia kulturalne, spacery, koncerty czy atrakcje związane z lokalną kulturą. Wyniki tego badania mogą stanowić podstawę dla dalszych badań naukowych nad historią turystyki, opieki zdrowotnej oraz

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życia kulturalnego w Polsce i w Ukrainie, a także stanowić punkt odniesienia do porównawczej analizy rozwoju przemysłu uzdrowiskowego w Europie Środkowo-Wschodniej w okresie międzywojennym.

Słowa kluczowe: turystyka zdrowotna, uzdrowisko, spa, okres międzywojenny.

Abstract

The purpose of the work is to analyze the development of resorts and health tourism in interwar Poland, using the example of balneological resorts located in the Lwów, Wołyń, and Tarnopol Voivodeships. The study employs a historical method, which allows to trace the main stages of the development of resort infrastructure, medical specialization, and treatment methods, as well as to identify trends in the organization of tourism and leisure at these resorts during the interwar period. For the first time, the article presents a systematic compilation of information about the resorts in these voivodeships, their medical characteristics, available treatment methods, accommodation infrastructure, as well as the level of attendance, prices and tourist flows. Special attention is given to the role of balneological treatments in the treatment of diseases and health restoration, as well as the cultural and recreational aspects that attracted tourists to these resort areas. The results of the study may serve as a foundation for further scholarly research on the history of healthcare, tourism, and cultural life in Poland and Ukraine, as well as for comparative analysis of the development of the resort industry in interwar Central and Eastern Europe.

Keywords: health tourism, resort, spa, interwar period.

Introduction

The relevance of this work is determined by the significance of the resort industry in interwar Poland as an important component of the social and economic structure, as well as a key element of the cultural landscape of that time. In the context of the economic and social transformation in interwar Poland, the development of resorts, particularly in the field of health tourism, became not only a response to the challenges of the time but also a factor in the formation of national identity. It is important to note that resorts played a crucial role not only in health improvement but also in the cultural and social integration of various regions of the country, making their study particularly valuable for historical research. In light of these factors, the study of resort infrastructure, medical specialization, and other aspects of health tourism in interwar Poland represents an important area of analysis within the context of both social and economic history.

The study employs several key categories such as “resort”, “health tourism”, “medical specialization”, “accommodation infrastructure”, “treatment methods”, “entertainment”, and “communication”. These categories represent the core components of the functioning of resort complexes, with each playing a specific role in the structure of the resort industry. The category of “resort” is used in a broad sense, encompassing not only places of leisure but also special-

ized medical institutions. "Health tourism" highlights the importance of resorts for treatment, disease prevention, and health recovery. "Medical specialization" refers to the areas of treatment and the medical infrastructure responsible for the well-being of the guests. These categories are employed to provide a deeper understanding of the functioning of resorts as a complex system of various spheres, ranging from healthcare to recreation.

The chronological framework of the study covers the interwar period, from 1918 to 1939. This period is a crucial era in Polish history, marking the country's recent regained independence and its efforts to restore economic and social stability after World War I. During this time, the resort industry experienced significant growth, serving not only as a means of improving the population's health but also as an important part of social life.

The geographical scope of the study is limited to three voivodeships: Lwów, Wołyń, and Tarnopol,[1] which were part of Poland at the time. These regions share similar natural resources that played a key role in the development of the resort industry. They served as important centers for both domestic and international tourism. The geographical specificity, including unique natural and climatic conditions, allowed these resorts to become some of the most visited and popular in interwar Poland. The resorts of Stanisławów Voivodeship (which, along with Lwów, Wołyń, and Tarnopol, formed the so-called southeastern voivodeships of interwar Poland) are not considered in this study. This is because the region hosted numerous resorts with a high degree of diversity – ranging from balneological and climatic to ski resorts, many of which utilized the natural features of the Carpathians as their primary tourist appeal. Given this diversity and specificity, the resorts of Stanisławów Voivodeship require a separate and more in-depth study, which lies beyond the scope of the current analysis.

The aim of this study is to analyze the resorts and tourist infrastructure of the southeastern region of interwar Poland, including Lwów, Wołyń, and Tarnopol voivodeships, with a focus on their role in the development of health tourism, the specifics of medical specialization, infrastructure, as well as the study of natural recreational resources and treatment methods. The object of the research in this article is the resorts of southeastern Poland (Lwów, Wołyń, and Tarnopol voivodeships) during the interwar period, specifically their infrastructure, medical practices, treatment methods, recreational resources, and leisure opportunities for tourists. The subject of the research is the peculiarities of the functioning of the resorts in these voivodeships between 1918 and 1939, includ-

[1] The names of cities, towns, and other geographic features in the article are presented as they were used during the interwar period (in Polish and in line with Polish conventions). Their current names may differ, as these locations are now part of Ukraine and are transliterated into the Latin alphabet based on Ukrainian spelling.

ing their geographical location, medical specialization, use of natural resources, organization of leisure, frequency of visits, as well as the role of medical personnel and treatment methods applied at the resorts.

The development of health tourism in interwar Poland cannot be fully understood without considering the broader political and economic context of the time. After regaining independence in 1918, Poland faced numerous challenges, including economic instability, the need to rebuild infrastructure, and the process of consolidating regional identities within the newly unified state. The development of balneological resorts in Lwów, Wołyń, and Tarnopol Voivodeships was closely linked to these broader national efforts. Investment in resort infrastructure not only contributed to economic recovery but also played a role in integrating diverse regions under a shared vision of national development. Additionally, significant territorial disparities existed within interwar Poland, with the eastern regions being less economically developed than the central and western parts of the country. Recognizing this, the government actively encouraged entrepreneurial initiatives in these areas, offering various incentives, including reduced railway fares for trips to resorts in the eastern regions, to stimulate economic activity and domestic tourism.

Moreover, interwar Poland was not a monoethnic state; many of its eastern regions had significant non-Polish populations (Ukrainians, Belarusians, etc.), sometimes even constituting the majority of inhabitants. In this context, tourism and leisure were also perceived by the authorities as an important integrating factor, helping to "bind" the diverse parts of the country together. By encouraging travel to eastern regions and fostering interactions between different ethnic and cultural groups, the government aimed to strengthen national cohesion and promote a shared sense of Polish identity across its heterogeneous population.

Additionally, these resorts served as significant sites of cross-border interaction, attracting international visitors from neighboring countries such as Czechoslovakia, Romania, and even Germany. There are records of visits to these resorts even by U.S. citizens. The presence of foreign tourists underscored the transnational appeal of Poland's natural health resources and highlighted the country's role in the wider European health tourism network. These international connections not only contributed to the economic success of the resorts but also played a subtle role in diplomatic and cultural exchanges. The ability of Polish health tourism to attract international visitors reinforced Poland's position as a key player in the interwar European tourism landscape, fostering economic and social ties beyond its borders.

The development of medical and health tourism, including the operation of balneological resorts in Lwów, Wołyń, and Tarnopol Voivodeships during the interwar period, has been extensively reflected in numerous sources and studies. The literature on this topic can be broadly divided into two main areas: the his-

torical and geographical description of the region's resorts and the analysis of their socio-economic significance. Publications from the interwar period provide valuable data on the structure of tourist infrastructure, including sanatoriums, hotels, and mineral springs. The works of S. Leszczycki[2] provide a comprehensive understanding of the geography of the resorts and their development within the socio-economic context of interwar Poland. At the same time, the works of V. Lyha[3] and M. Holovaty[4] offer an ecological and geographical analysis of key resorts in Galicia. Issues related to the organization of leisure and the promotion of balneological resorts have been explored in both Polish and Ukrainian historiography. For example, publications by R. Gawkowski[5] and V. Hansky[6] emphasize the mass nature of resort tourism in the context of shaping national identity and improving public health standards. Works such as those edited by M. Loboda[7] add important details about the natural resources of the region and their significance for the development of health resorts. Contemporary studies, such as the monograph by S. Królak[8], address issues of sustainable development in resort tourism from a historical perspective. At the same time, the works of O. Hryniuk[9] and V. Klapchuk[10] emphasize the role of the region's medical and

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[2] S. Leszczycki, *Ruch uzdrowiskowo letniskowy w Polsce*, Drukarnia Bratniej Pomocy Medyków UJ, Kraków 1938.; S. Leszczycki, *Uzdrowiska Polski: ich rozmieszczenie oraz rozwój w latach 1921-1938*, Studium Turyzmu Uniwersytetu Jagiellońskiego, Kraków 1939, p. 11.

[3] В. Лига, *Великий Любінь – край цілющих джерел*, Друкарські куншти, Львів 2009, с. 25-31. V. Lyha, *Velykyy Lyubin – kray tsilyushchykh dzherel*, Drukarski kunshty, Lviv 2009, p. 25.

[4] М. Головатий, *Еколого-географічний аналіз та оцінка бальнеологічних курортів Львівської області: диссертація кандидата наук*, Львівський національний університет імені Івана Франка, Львів 2016, с. 304. M. Holovatyy, *Ekoloho-heohrafichnyy analiz ta otsinka balneolohichnykh kurortiv Lvivskoyi oblasti: dyssertatsiya kandydata nauk*, Lvivskyy natsionalnyy universytet imeni Ivana Franka, Lviv 2016, p. 304.

[5] R. Gawkowski, *Wypoczynek w II Rzeczpospolitej*, Dragon, Bielsko-Biała 2012, p. 112.

[6] В. Ганський, Організація відпочинку населення у міжвоєнній Польщі (1918-1939 рр.), "*Наукові праці історичного факультету Запорізького національного університету*" 2017, вип. 49, с. 171-175. V. Hanskyy, Orhanizatsiya vidpochynku naselennya u mizhvoyenniy Polshchi (1918-1939 rr.), "*Naukovi pratsi istorychnoho fakultetu Zaporizkoho natsionalnoho universytetu*" 2017, vyp. 49, p. 171-175.

[7] М. Лобода (ред.), *Курортні ресурси України*, ТАМЕД, Київ 1999, с. 340. M. Loboda (ed.), *Kurortni resursy Ukrayiny*, TAMED, Kyiv 1999, p. 340.

[8] S. Królak, *Turystyka uzdrowiskowa w Polsce – rozważania nad istotą, determinantami i przyszłością*, „Rozwój Regionalny i Polityka Regionalna" 2021, nr 53, pp. 125-146.

[9] О. Гринюк, *Формування територіально-рекреаційних систем лікувального типу* (*на прикладі курорту Трускавець*)*: диссертація кандидата наук*, Київський національний університет ім. Тараса Шевченка, Київ 2007, с. 196. O. Hrynyuk, *Formuvannya terytorialno-rekreatsiynykh system likuvalnoho typu* (*na prykladi kurortu Truskavets*)*: dyssertatsiya kandydata nauk*, Kyivskyy natsionalnyy universytet im. Tarasa Shevchenka, Kyiv 2007, p. 196.

[10] В. Клапчук, *Туризм і курортне господарство Галичини*, Фоліант, Івано-Франківськ 2012, с. 224. V. Klapchuk, *Turyzm i kurortne hospodarstvo Halychyny*, Foliant, Ivano-Frankivsk 2012, p. 224.

recreational systems in the economy. Thus, the study of balneological resorts in Lwów, Tarnopol, and Wołyń Voivodeships provides a unique example of the interaction between natural resources and human activity during the interwar period. The literature on the topic covers a wide range of issues – from the historical and cultural significance of the resorts to the analysis of their infrastructure and natural factors.

Research Problems and Methods

The article focuses on addressing the following research problems:

— How did the geographical location and natural resources influence the formation and development of balneological resorts, as well as their attractiveness as health resorts?
— How did the natural and medical conditions determine the specialization of each resort in the treatment of specific diseases?
— What trends and factors influenced the dynamics and frequency of visits to resorts, as well as the seasonal fluctuations in the number of visitors?
— How did the professional composition and qualifications of the medical staff at the resorts align with the needs of the visitors and the specialization of the resorts?
— What treatment methods were predominant at these resorts, and how did they contribute to strengthening health and the recovery of visitors?
— How effective and developed was the infrastructure for accommodating guests at the resorts, and to what extent did it match the volume of tourist traffic?
— What did the pricing policy of the resorts entail, and what were the costs of medical services, accommodation, and treatments at the resorts in the late 1930s?
— What role did leisure activities and cultural programs play in enhancing the appeal of resorts to visitors?
– How was the transport accessibility of the resorts ensured, and what informational resources and navigation tools facilitated the convenience of tourists?

These research problems constitute the main focus of the study, revealing the multifaceted nature of the resort system and tourist infrastructure in interwar Poland within the specified voivodeships.

The methodology of this study is based on a comprehensive approach that combines various historical and social methods. The research is grounded in the principles of historicism, which involves analyzing the subject in the context of its time, as well as the principle of objectivity, which requires an impartial and

neutral approach to sources and facts. It is also important to highlight the principle of consistency, which ensures a logical and structured presentation of the material. Both traditional and specialized historical methods were employed in the course of the study, allowing for a thorough examination of all aspects of the phenomenon under investigation.

Methodologically, the study is based on a systemic approach, which includes the analysis of various elements that constitute a unified whole. The article employs structural-functional, dialectical, and hermeneutic methods, allowing for the examination of both the internal mechanisms of resort functioning and their interaction with broader socio-economic and cultural processes of the interwar period. Additionally, typological and historical-geographical methods are used, helping to assess the unique characteristics and geographical location of the resort regions, as well as a descriptive method for in-depth analysis of historical sources and archival materials. To substantiate the conclusions, comparative and generalizing methods, as well as induction and deduction, are employed, enabling the formulation of broader conclusions about the development of the resort industry in interwar Poland.

Location and natural resources

The geographical location and natural recreational resources of the resorts of Truskawiec, Szkło, Niemirów, Lubień Wielki (Lwów Voivodeship), Huta Stepańska (Wołyń Voivodeship), and Zaleszczyki (Tarnopol Voivodeship) during the interwar period played a key role in shaping their significance and attractiveness for visitors, contributing to the development of unique health complexes that attracted tourists not only from various regions of Poland but also from beyond its borders. All of them are now in Ukraine.

Truskawiec was located in the foothills of the Eastern Carpathians, at an altitude of about 350 meters above sea level, which provided the resort with a mild climate, sheltered from harsh winds by the surrounding mountains.[11] Situated in a narrow valley surrounded by forests and mineral springs, Truskawiec had abundant resources of therapeutic waters, which made it one of the most popular resorts in interwar Poland. Water sources rich in hydrogen sulfide, iodine, iron, and magnesium, such as "Naftusia", were used for drinking treatments, aiding in the treatment of kidney, stomach, and liver ailments. The salt-alkaline waters of Truskawiec had similar compositions to those of Karlovy Vary, which further enhanced the resort's reputation.[12] The forested area, clean air,

[11] *Krótki informator turystyczny po województwach wschodnich* (*lwowskie, stanisławowskie, tarnopolskie i wołyńskie*), Nakładem P.B.P. „Orbis", Lwów 1936, p. 17.

[12] Б. Матолич (ред.), *Мінеральні води та курорти Львівщини*, Палітра Друку, Львів 2003, с. 96. B. Matolych (red.), *Mineralni vody ta kurorty Lvivshchyny*, Palitra Druku, Lviv 2003, p. 96.

and many sunny days throughout the year made Truskawiec an ideal place for climatotherapy.[13]

Szkło was located at an altitude of about 240 meters above sea level, surrounded by forests and marshes. Its main natural resource was its hydrogen sulfide waters, renowned for their therapeutic properties. Positioned on the northwestern edge of Lwów Voivodeship, Szkło was accessible to residents of the region's major cities. Mineral springs with high hydrogen sulfide content, along with unique therapeutic peat mud, formed the basis of its treatment offerings.[14] The surrounding pine and mixed forests provided clean, comfortable air, particularly beneficial for patients with respiratory conditions.

Niemirów, located about 10 km from the town of Rawa Ruska, also in Lwów Voivodeship, was renowned for its mineral springs rich in hydrogen sulfide and iron. Situated at an altitude of around 270 meters above sea level amid extensive forested areas, it benefited from a favorable microclimate.[15] The peat bogs with healing mud and Niemirów's hydrogen sulfide waters were used primarily for the treatment of musculoskeletal and skin conditions. Its geographic proximity to major population centers in Lwów made Niemirów a popular destination for short-term rest and treatment.[16]

Lubień Wielki, at an elevation of 280 meters, was known for its chloride-sodium waters, used in therapeutic baths. Located just a few kilometers from Lwów, the resort was easily accessible for residents of the region's major cities. Its natural environment, comprising pine and mixed forests, fostered a healthful and relaxing atmosphere.[17] The resort's proximity to large urban centers and convenient transport connections ensured a steady flow of visitors, supporting its rapid development during the interwar period.

The resort of Huta Stepańska, located in Volhynia, was a relatively young spa destination featuring mineral springs rich in iron and salts, suitable for both external and internal therapeutic use. Situated at an altitude of 170 meters above sea level and surrounded by forests, it enjoyed a microclimate conducive to health and recovery.[18] The resort also had abundant peat mud resources, uti-

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[13] C. Koźmiński, B. Michlska, E. Szczepanowska, K. Górnik, *Zarys turystyki zdrowotnej i uzdrowiskowej*. Wyd. Naukowe US, Szczecin 2013, p. 205.

[14] О. Федунь, *Бальнеологічні ресурси Передкарпаття*, ВНТЛ, Львів 1999, с. 167. O. Fedun, Balneolohichni resursy Peredkarpattya, VNTL, Lviv 1999, p. 167.

[15] Л. Устименко, *Історико-суспільні аспекти становлення та розвитку лікувально-оздоровчого туризму*, "Питання культурології" 2014, вип. 30, с. 134-142. L. Ustymenko, *Istoryko-suspilni aspekty stanovlennya ta rozvytku likuvalno-ozdorovchoho turyzmu*, "Pytannya kulturolohiyi" 2014, vyp. 30, p. 134-142.

[16] Державний архів Львівської області. Ф. 1. Оп. 9. Спр. 5385. Арк. 121-132. Derzhavnyy arkhiv Lvivskoyi oblasti. F. 1. Op. 9. Spr. 5385. Ark. 121-132.

[17] В. Лига, оп. цит., с. 25-31. V. Lyha, op. cit., p. 31.

[18] О. Тарасенко, В. Соколов (ред.), *Курорти та санаторії України*, Фоліграант, Київ 2009, с. 432. O. Tarasenko, V. Sokolov (eds.), *Kurorty ta sanatoriyi Ukrayiny*, Folihrant, Kyiv 2009, p. 432.

lized for various treatments. Its remote geographic location made it somewhat less accessible, but this isolation contributed to a tranquil atmosphere ideal for prolonged treatment in a secluded setting.

Zaleszczyki was uniquely situated on a peninsula surrounded by the Dniester River, which formed a natural border between Poland and Romania. The resort was located at an altitude of 150 meters above sea level, with the southern orientation of the peninsula contributing to a much warmer climate than in most of interwar Poland. Protected by the Dniester and the rocky right bank, Zaleszczyki enjoyed a warm, almost subtropical microclimate reminiscent of the Black Sea coast.[19] This climate made Zaleszczyki ideal for heliotherapy, air and water treatments, river bathing, and a fruit-and-vegetable diet, which made the resort particularly popular for family vacations with children and for climate therapy.

Medical specialization and areas of treatment

The medical specialization of each of the resorts – Truskawiec, Szkło, Niemirów, Lubień Wielki, Huta Stepańska, and Zaleszczyki – during interwar Poland was shaped by unique natural resources and geographic locations, which supported the development of specialized treatments for various patient groups.

Truskawiec was best known for its unique water sources, particularly "Naftusia", which had a mild diuretic effect and was used for treating kidney, bladder, and urinary tract disorders. The "Naftusia" water was rich in organic compounds and light hydrocarbons, making it effective in treating chronic inflammatory kidney conditions, urolithiasis, and other urological issues.[20] Additionally, sulfur-rich springs and mineral baths were widely employed to treat musculoskeletal ailments. The resort also specialized in treating digestive system disorders, including gastritis, peptic ulcers, and chronic colitis. During the interwar period, Truskawiec emerged as a premier resort for the comprehensive treatment and rehabilitation of patients with kidney and digestive system diseases.

The resort of Szkło was a specialized center for treating musculoskeletal disorders due to its abundant hydrogen sulfide water sources and local deposits of therapeutic mud. Hydrogen sulfide baths, known for their anti-inflammatory and analgesic properties, were used to treat chronic joint diseases, rheumatism, and arthritis.[21] Therapeutic mud was applied in poultices and wraps for condi-

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[19] R. Gawkowski, op. cit., p. 64.

[20] Т. Глухенький (ред.), *Курорти західних областей України*, Держмедвидав УРСР, Київ 1959, с. 232. T. Hlukhenkyy (ed.), *Kurorty zakhidnykh oblastey Ukrayiny*, Derzhmedvydav URSR, Kyiv 1959, p. 232.

[21] J. Burczak (ed.), *Małopolska Wschodnia. Lwów – Stanisławów – Tarnopol*, Wyd. Agencji Telegraficznej, Warszawa 1935, p. 28.

tions such as neuralgia and injuries, supporting rehabilitation after fractures and surgeries. Szkło was also recommended for patients with skin conditions like psoriasis and eczema due to the antiseptic properties of its hydrogen sulfide water. The resort thus became an important destination for the treatment of rheumatological and dermatological disorders.

Niemirów resort specialized in the treatment of rheumatic diseases and respiratory disorders, thanks to its rich sources of hydrogen sulfide and iron-rich waters. The water from Niemirów's springs, used both for drinking and bathing, was effective in improving the condition of patients with chronic joint and muscle diseases. The iron-rich waters were employed to strengthen the immune system and treat anemia. Niemirów also featured therapeutic mud sources, used in the treatment of neuralgia and recovery from injuries. In addition to joint treatments, Niemirów was recommended for patients with asthma and bronchitis, as the surrounding pine forests provided a natural inhalation effect that eased breathing.[22] During the interwar period, Niemirów became one of the major centers for the treatment of rheumatism and anemia.

The resort of Lubień Wielki specialized in treating circulatory and nervous system disorders. Its sodium chloride-rich waters were used for baths and irrigations, beneficial for patients with chronic hypertension, vascular diseases, and nervous disorders. Sodium chloride baths improved circulation and alleviated pain in cases of neuralgia and sciatica. Lubień Wielki was also recommended for post-surgical recovery, as saline and mineral water therapies promoted tissue regeneration and strengthened muscle tone.[23] Due to its proximity to Lwów and well-developed infrastructure, the resort attracted visitors seeking comprehensive treatment for cardiovascular diseases and nervous system disorders.

The resort of Huta Stepańska specialized in treating blood disorders and general body fatigue. Its iron-rich mineral waters were consumed by patients with anemia and chronic infectious diseases, enhancing metabolic function and boosting hemoglobin levels. The resort's therapeutic mud was applied for post-injury recovery and treatment of skin conditions. Huta Stepańska was also recommended for patients experiencing exhaustion and overall physical weakness, as the iron-rich waters helped restore vitality and strengthen immune function.[24] With a low visitor count, the resort maintained a tranquil atmosphere, providing an ideal setting for those requiring extended recuperative care.

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[22] M. Piotrowski (ed.), *Przewodnik zdrojowo-turystyczny*, Warszawa 1934, p. 368.

[23] W. Przywieczerski (ed.), *Uzdrowiska polskie*, Zakład Graficzny Instytutu Wydawniczego „Biblioteka Polska", Bydgoszcz 1937, p. 37.

[24] В. Павлов, Л. Черчик, *Рекреаційний комплекс Волині: теорія, практика, перспективи*, Надстир'я, Луцьк 1998, с. 122. V. Pavlov, L. Cherchyk, *Rekreatsiynyy kompleks Volyni: teoriya, praktyka, perspektyvy*, Nadstyrya, Lutsk 1998, p. 122.

The resort of Zaleszczyki, often referred to as the "Polish Merano", specialized in climatotherapy due to its warm microclimate, which resembled that of southern Europe.[25] The resort was popular for treating chronic lung and bronchial diseases and was also used for rehabilitating children with weakened immune systems and developmental issues related to bones and joints. With abundant sunny days, Zaleszczyki offered patients the opportunity for extended stays outdoors in the sun, promoting vitamin D production and strengthening the skeletal system. The resort also practiced fruit and vegetable diets to detoxify the body and improve health, while recommending water treatments in the Dniester River for hardening and boosting immunity.

Visitor Frequency

During the interwar period, the frequency of visits to various resorts in Lwów, Wołyń, and Tarnopol Voivodeships showed significant differences, reflecting both the popularity of these places and their accessibility, as well as the level of infrastructure. The resort of Lubień Wielki in the mid-1930s attracted about 3.000 visitors annually. This figure made Lubień Wielki a fairly popular resort in the region, owing to its nationally known mineral water and medical facilities. Niemirów during the same period welcomed an average of 3.500 visitors per year. This indicates a high level of popularity, likely driven by the well-developed infrastructure and skilled medical staff. Niemirów was particularly popular among those seeking wellness through hydrotherapy and massage treatments. Szkło was visited by 500 people annually. Despite the lower volume of tourist traffic, the resort maintained a stable level of interest due to its unique sulfuric waters and accessibility for residents of nearby areas. Truskawiec was the largest and most visited resort in the region. For example, in 1936, it attracted 18.000 guests. The high attendance at Truskawiec can be attributed both to its extensive medical facilities and the widespread popularity of its unique mineral water, "Naftusia". In the same year, Huta Stepańska hosted 500 vacationers.[26] Although the number of visitors was relatively small, this can be explained by the resort's remoteness and its recent opening, which may have hindered the growth of its visitor flow. Nonetheless, the resort attracted people

[25] S. Lenartowicz (ed.), *Przewodnik po Polsce* (*w 4 t.*). *T.2: Polska Południowo-Wschodnia*, Sp. Akc. Nasza księgarnia, Warszawa 1937, p. 540.

[26] Т. Ковальчук, *Регіональний туризм у Польській Республіці в міжвоєнний період: Волинське воєводство*: *диссертація кандидата наук*, Києво-Могилянська академія, Київ 2012, с. 136. T. Kovalchuk, *Rehionalnyy turyzm u Polskiy Respublitsi v mizhvoyennyy period: Volynske voyevodstvo: dyssertatsiya kandydata nauk*, Kyyevo-Mohylyanska akademiya, Kyiv 2012, p. 136.

due to its specific balneotherapy offerings. Zaleszczyki was visited by an average of 4.000 people per year, reflecting its appeal for both family vacations and wellness. The warm climate, well-developed infrastructure, and variety of recreational activities, including river beaches and sunbathing, made it popular among residents of southern Poland and neighboring areas. The frequency of visits to the resorts ranged from as few as 500 visitors per year in Huta Stepańska and Szkło to 18.000 in Truskawiec, with Lubień Wielki, Niemirów, and Zaleszczyki in intermediate positions (3.000-4.000 guests).[27] Truskawiec became the undisputed leader, owing to its unique natural therapeutic resources as well as its more developed medical and tourist infrastructure.[28]

Medical staff

The resorts under consideration provided services from qualified medical staff, focusing on comprehensive treatment and health recovery, although the number of specialists and their qualifications varied significantly. In 1936, the resort of Lubień Wielki welcomed 3.000 visitors. The medical staff consisted of 5 doctors, one nurse, and one masseur, resulting in a ratio of 1 doctor per 600 visitors and one medical worker (including nurses and masseurs) per 428 visitors.[29] This indicates a relatively balanced ratio of doctors to guests, although the low number of nurses and masseurs placed an increased workload on each specialist. In 1936, Niemirów hosted 3.500 guests and had a more substantial number of specialists: 7 doctors, 5 of whom practiced directly, and 2 who supervised the baths, along with two nurses and six masseurs. Thus, there was approximately 1 doctor for every 500 visitors, and each medical staff member served an average of 219 people, a high figure compared to the other resorts. The extensive team of masseurs in Niemirów highlights the importance of hydrotherapy and massage procedures at this resort. In Szkło, there were 500 visitors recorded in 1936, and they were attended to by two doctors and three masseurs. This resulted in a ratio of 1 doctor for every 250 visitors and 1 medical worker for every 167 visitors. Such a ratio suggests a more personalized approach to patient care and potentially better availability of procedures. Truskawiec was the largest of the resorts under consideration, with 18.000 visitors. The resort was serviced by 39 doctors, three of whom were dentists. This gave a ratio of 1 doctor for every 462 visitors, and taking into account all medical staff, one

[27] *Uzdrowiska polskie,* op. cit., p. 273.

[28] Державний архів Львівської області. Ф. 1. Оп. 9. Спр. 73. Арк. 29-32. Derzhavnyy arkhiv Lvivskoyi oblasti. F. 1. Op. 9. Spr. 73. Ark. 29-32.

[29] H. Piotrowski (ed.), *Przewodnik zdrojowo-turystyczny*, Nakł. własny, druk B. Pardecki, Warszawa 1937, p. 96.

medical worker was responsible for 167 visitors.[30] Thus, Truskawiec not only had the largest number of medical personnel but also the most optimal distribution for providing quality care to a large influx of guests. In 1936, Huta Stepańska welcomed 500 visitors and had minimal medical staff consisting of one doctor, one paramedic, and one masseur. This resulted in a ratio of 1 doctor for every 500 visitors and 1 medical worker for every 167 visitors, which was relatively high for such a small resort.[31] However, due to the limited staff, the ability to provide specialized care was somewhat constrained. In 1936, Zaleszczyki hosted 4.000 visitors, who were served by 8 doctors.[32] The ratio was 1 doctor for every 500 visitors, which was typical for medium-sized resorts and allowed for the maintenance of stable service quality. The resorts varied significantly in the size and distribution of medical personnel. At the largest resort, Truskawiec, the most optimal distribution of doctors and medical staff was observed, ensuring sufficient medical care even with a large influx of guests. Niemirów also stood out for its high number of masseurs, enabling a wide range of wellness treatments. Meanwhile, at resorts like Huta Stepańska and Szkło, with fewer doctors and specialists, access to personalized treatment might have been more limited, potentially affecting their popularity and placing a higher workload on medical staff.

Therapeutic methods and treatment options

During the interwar period, the resorts of Truskawiec, Szkło, Niemirów, Lubień Wielki, Huta Stepańska, and Zaleszczyki employed a variety of therapeutic methods that aligned with contemporary scientific understanding and technologies focused on natural healing and the use of local resources. These methods included the use of mineral waters, mud therapy, climatotherapy, as well as dietary and physical treatments.

Mineral waters were a key component of treatment at most resorts. In Truskawiec, for example, the unique "Naftusia" spring was used to treat kidney and urinary tract diseases due to its diuretic and antiseptic properties. At Niemirów, hydrogen sulfide and iron-rich waters were prescribed for drinking, baths, and irrigations, aiding in the treatment of blood disorders and improving joint conditions in cases of rheumatism. The Lubień Wielki waters, rich in sodium chloride, were utilized for bathing, irrigations, and inhalations, providing relief for

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[30] *Księga adresowa Małopolski: Lwów – Stanisławów – Tarnopol. Z informatorem M. Stol. Warszawy, województwa krakowskiego, łódzkiego, pomorskiego, poznańskiego i śląskiego. Rocznik 1935/1936*, Kraków 1935, p. 136.

[31] *Uzdrowiska polskie*, op. cit., p. 124.

[32] Державний архів Тернопільської області. Ф. 231. Оп. 6. Спр. 3623. Арк. 17-18. Derzhavnyy arkhiv Ternopilskoyi oblasti. F. 231. Op. 6. Spr. 3623. Ark. 17-18.

vascular diseases and respiratory issues.[33] Thus, each resort utilized its water resources according to their specific composition, and the treatment methods varied from internal consumption to external baths and irrigations. These natural therapies were central to the healing practices at the resorts, supporting a holistic approach to health and wellness. At Truskawiec and Niemirów,[34] mineral and hydrotherapy treatments included hot baths, which were beneficial for muscle pain and chronic inflammatory conditions.

Mud applications and wraps were widely used at Szkło and Niemirów resorts, where local muds contained high concentrations of hydrogen sulfide and minerals.[35] These treatments were applied for the treatment of rheumatic and neurological disorders. Mud therapy was also employed at Huta Stepańska for post-injury and post-surgery recovery. Physicians believed that the thermal and chemical properties of the muds promoted improved blood circulation, reduced inflammation, and alleviated pain, which was in line with the prevailing medical trends of the time, focused on tissue regeneration and strengthening joints and muscles.

Climate therapy played a significant role at the resorts, particularly in Zaleszczyki. The mild climate, abundant sunshine, and protection from winds made this resort popular for treating chronic respiratory diseases and for the rehabilitation of weakened children. Staying outdoors, regular sunbathing, and walks along the Dniester River helped strengthen the immune system and promoted physical recovery. At other resorts, such as Huta Stepańska, the natural environment with dense forests was also considered a beneficial factor for health improvement.

Dietary treatments, based on natural products, were popular and supported as part of the spa therapy. In Zaleszczyki, for example, patients often followed a fruit and vegetable diet, which was believed to be effective for detoxifying the body and improving overall health. Diets including fresh vegetables, fruits, and local dairy products were also recommended to patients in Truskawiec, where it was believed that such foods positively influenced digestion and metabolism.[36] These approaches emphasized the importance of natural nutrition in restoring strength and promoting health recovery.

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[33] W. Przywieczerski (ed.), *Uzdrowiska polskie: przewodnik*, Związek Uzdrowisk Polskich, Warszawa 1936, p. 89.

[34] Державний архів Львівської області. Ф. 1. Оп. 9. Спр. 2175. Арк. 11. Derzhavnyy arkhiv Lvivskoyi oblasti. F. 1. Op. 9. Spr. 2175. Ark. 11.

[35] В. Комар, *Історія містечка Немирів і його однойменного санаторію*, Тріада плюс, Львів 2014, с. 324. V. Komar, Istoriya mistechka Nemyriv i yoho odnoymennoho sanatoriyu, Triada plyus, Lviv 2014, p. 324.

[36] В. Літописець, *Трускавець – володар «живої води»*, Сурма, Дрогобич 2008, с. 64. V. Litopysets, *Truskavets – volodar "zhyvoyi vody"*, Surma, Drohobych 2008, p. 64.

Physiotherapeutic procedures, including massages and therapeutic exercises, were also widely used in interwar sanatoria. Massages were particularly common at Niemirów and Szkło, where they were employed as a means to restore joint mobility and relax muscles after injuries or in cases of chronic musculoskeletal diseases. In some sanatoria, such as Lubień Wielki and Truskawiec, physiotherapy also included outdoor exercises, particularly morning gymnastics, which were an integral part of the therapeutic methods of the time.[37]

At many resorts, particularly in Zaleszczyki, sunbathing and hydrotherapy were considered important therapeutic methods. It was believed that daily exposure to the sun and swimming in the Dniester River helped with acclimatization, improved metabolism, and increased vitamin D levels, which was especially beneficial for children with bone issues and patients suffering from chronic illnesses.[38]

Overall, the use of natural therapeutic resources and treatment methods at the resorts under consideration during the interwar period reflected the popular ideas of the time regarding natural healing, which were based on the integration of natural factors and medical science in resort medicine. These methods formed the foundation for a holistic approach to treatment and rehabilitation, relying on the unique natural advantages of each resort.

Accommodation infrastructure

The accommodation infrastructure at the resorts in Lwów, Wołyń, and Tarnopol Voivodeships during the interwar period was quite diverse and catered to tourists with varying needs and financial means. The resorts offered hotels, guesthouses, and private homes, which allowed for the organization of vacations for a large number of guests.

Truskawiec was the largest resort in the region, with a well-developed network of hotels and guesthouses providing a high level of comfort. Truskawiec had approximately 5.000 rooms, located across 7 hotels and 26 guesthouses.[39] All accommodation facilities were equipped with sewage systems and offered the possibility of providing specialized diets, which was particularly important for visitors requiring therapeutic diets. With such infrastructure, Truskawiec was capable of accommodating a large number of guests simultaneously, creating comfortable conditions for extended stays and treatment.

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[37] *Informator zjazdowy oraz katalog wystawy przyrodniczo-lekarskiej i uzdrowiskowej*, Drukarnia Antoniego Gojawiczyńskiego, Lwów 1937, p. 42.

[38] *Krótki informator turystyczny,* op. cit., p. 18.

[39] *Skorowidz Hotelowy Rzeczpospolitej Polskiej. Spis hoteli, pensjonatów, zajazdów, sanatoriów, lecznic, itd*. Kraków 1930, p. 196.

Zaleszczyki resort offered a variety of accommodation options for its guests. There were two hotels, one with 22 rooms and the other with 8 rooms, along with 15 guesthouses. Additionally, Zaleszczyki had an officer's rest house with 300 places and a tourist house for 80 people, making it popular among families and organized tourist groups. The resort also had a school tourist base, providing opportunities for youth and schoolchildren to rest.

At Huta Stepańska resort, there were 7 guesthouses, 5 of which were Polish and 2 Jewish. Each of them had between 8 and 19 rooms, providing accommodation for a significant number of guests, although the infrastructure here was much more modest compared to Truskawiec and Zaleszczyki. This set of accommodation facilities reflected the more intimate character of the resort.

Szkło resort could accommodate up to 300 guests at a time. The resort had 3 guesthouses, each with 8 to 14 rooms. This made Szkło a place for a more limited number of visitors, which may have attracted those seeking solitude and tranquility. The resort's infrastructure allowed it to host tourists in need of short-term rest and rehabilitation. Niemirów had approximately 700 rooms in 45 villas and guesthouses, making it a large and popular resort.[40] The infrastructure was designed to meet the diverse needs of guests, including dietary meals and various accommodation options. The large number of villas and guesthouses indicated a high level of infrastructure and the resort's appeal to visitors with different preferences.

The resort of Lubień Wielki could accommodate from 2.000 to 2.500 people at a time, making it one of the largest resorts in the region in terms of accommodation capacity. It had 4 hotels, which collectively offered 160 single and double rooms, as well as 6 guesthouses. The infrastructure of Lubień Wielki was designed for mass tourism, allowing the resort to host a large number of visitors simultaneously, creating comfortable conditions for both recreation and treatment.[41]

Overall, the accommodation infrastructure at the resorts of Lwów, Wołyń, and Tarnopol Voivodeships was diverse and well-organized, covering various types of hotels and guesthouses.[42] Depending on the size of the resort, the number of available accommodation spots ranged from several hundred to several thousand. Truskawiec, with its extensive network of hotels and guesthouses, was the leader in terms of the number of rooms and amenities, while Zaleszczyki and Lubień Wielki also offered significant accommodations for visitors. Szkło and Huta Stepańska, on the other hand, catered to smaller groups of tourists, attracting those who preferred a more tranquil and less crowded environment.

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[40] T. Wilgat, *Rozmieszczenie przemysłu pensjonatowo-hotelowego w Polsce*, Kraków 1939, p. 12.

[41] Державний архів Львівської області. Ф. 1. Оп. 9. Спр. 81. Арк. 61-64. Derzhavnyy arkhiv Lvivskoyi oblasti. F. 1. Op. 9. Spr. 81. Ark. 61-64.

[42] *Przewodnik dla podróżnych: hotele, pensjonaty, uzdrowiska w Polsce 1935/1936*, Polska Agencja Telegraficzna, Warszawa 1935, p. 21.

Pricing and Services

The prices at the resorts of Lubień Wielki, Niemirów, Szkło, Truskawiec, Huta Stepańska, and Zaleszczyki during the interwar period were an important aspect of the functioning of these resorts. The cost of treatment, accommodation, and additional services varied depending on the season, class, and type of procedures, reflecting both the economic situation of the time and the social structure of the visitors. The following are the price details as of 1937-1938. At Huta Stepańska resort, the cost of treatments such as salt and mud baths ranged from 1.1 to 3.3 zlotys, depending on the class. Mud compresses and other services, such as compresses for feet and hands, also had their own tariffs, which were reduced for different categories of citizens, including clergy, military personnel, and officials. The pricing system at Huta Stepańska included fixed rates for accommodation and meals, which ranged from 1 to 5 zlotys, depending on the accommodation conditions and season. Doctors and their families were entitled to significant discounts, including free treatment, highlighting the importance of medical staff at the resort. Lubień Wielki was known for its sulfur baths, the cost of which ranged from 2 to 3 zlotys per session, depending on the class. In the summer months, prices increased by 50 groszy. There were discounts of 50% for government officials and military personnel, and 10% for teachers. The cost of accommodation in a single room ranged from 2 to 3.5 zlotys, also depending on the season. The resort fee at Lubień Wielki was 14 zlotys for the entire stay, while the administrative fee was 2 zlotys per person.[43] At Niemirów, the prices for various treatments ranged from 1.8 to 5 zlotys, depending on the type of bath (sulfur, mud, or gas) and other medical procedures. Doctors and their families were entitled to a 100% discount, underscoring the priority of medical services at the resort. Accommodation prices ranged from 2.6 to 6 zlotys per day, depending on the type of room and season. Truskawiec offered a variety of treatments, such as salt and sulfur baths, mud baths, and inhalations. Prices for these treatments started at 2 zlotys for inhalations and went up to 7 zlotys for mud baths.[44] The resort fee in Truskawiec ranged from 13 to 25 zlotys, depending on the season, while accommodation in guesthouses started at 5.5 zlotys per room. Szkło, with its sulfur baths and mud treatments, offered more affordable prices, ranging from 1.25 to 3.5 zlotys per session.[45] Discounts were also available for certain groups of people, including doctors, nurses, and low-income individuals, making the resorts more accessible to various social classes. In Zaleszczyki, the resort fee was relatively low, amounting to 10 zlotys for an individual's

[43] *Uzdrowiska polskie,* op. cit., p. 166.
[44] *Uzdrowiska polskie,* op. cit., p. 224.
[45] S. Lenartowicz, , op. cit., p. 540.

entire stay, while for a family of three, the fee was 15 zlotys. Furnished rooms with local residents could be rented for 20-40 zlotys per month, indicating that the resort was affordable for long-term stays. Thus, the prices at the resorts varied widely, depending on factors such as seasonality, the class of medical treatments, and the type of guests. The resorts offered significant discounts for medical professionals and provided different options for accommodation and treatment, catering to the financial capacities of their visitors.

Leisure activities and entertainment

During the interwar period, the resorts of Truskawiec, Szkło, Niemirów, Lubień Wielki, Huta Stepańska, and Zaleszczyki offered a wide range of leisure activities that complemented the healing treatments and attracted tourists. These activities included cultural events, as well as sports and social activities, catering to the diverse tastes and needs of vacationers. Truskawiec was known for its entertainment options, which included daily dance nights and orchestra performances in the resort's park.[46] Additionally, the town featured a theater and a cinema, with a library and reading room available for visitors.[47] The resort attracted tourists with its extensive walking routes, allowing them to enjoy the surrounding nature. Automobile tours to nearby areas were also organized. Zaleszczyki, with its warm climate and unique location on the banks of the Dniester River, offered beach recreation and sunbathing. Tourists were attracted by swimming, boating, and river excursions. The leisure activities were further enhanced by various cultural events, such as concerts, theatrical performances, and Sunday festivals.[48] Entertainment evenings on the beaches and daily dances attracted both locals and vacationers. Szkło and Huta Stepańska offered more modest entertainment. Szkło was known for its peaceful atmosphere, with activities such as walks and reading complementing the restful environment. In Huta Stepańska, besides radio, there were no particular attractions, but the natural beauty and the tranquility of the forests provided an opportunity for peaceful outdoor relaxation. Niemirów offered tourists a secluded retreat surrounded by forests, with opportunities for walks and picnics. The resort wasn't filled with entertainment, but the presence of restaurants and musical evenings made the stay enjoyable. Over time, Niemirów resort increased the number of cultural ac-

[46] Т. Лоренц, *Трускавець у 1461-1936 роках. Історичний нарис*, Кальварія, Львів 2017, с. 195. T. Lorents, *Truskavets u 1461-1936 rokakh. Istorychnyy narys*, Kalvariya, Lviv 2017, p. 195.

[47] K. Wojciechowski, *Województwo lwowskie jako teren letniskowy*, „Samorząd" 1938, nr 2, pp. 26-28.

[48] Державний архів Тернопільської області. Ф. 36. Оп. 1. Спр. 16. Арк. 3. Derzhavnyy arkhiv Ternopilskoyi oblasti. F. 36. Op. 1. Spr. 16. Ark. 3.

tivities, including excursions to regional landmarks.[49] Wielki Lubień offered a more active leisure experience, as the local sports facilities allowed visitors to engage in various sports, including tennis and badminton. The resort also organized cultural events, such as dance nights, concerts, and literary readings held in the hotel halls. Thus, each of these resorts provided its own options for relaxation and leisure.[50] From attending concerts and dances to beach walks and nature excursions, leisure activities were an essential part of the resort experience. They catered to both the preferences of city dwellers and the cultural traditions of the regions, making the stay more attractive and enjoyable for visitors.

Transport links and information

The resorts placed a great emphasis on the convenience of transportation and the availability of information for tourists. These measures helped attract visitors from various regions of the country, creating conditions for easy arrival and orientation at the locations. Truskawiec, one of the largest and most developed resorts, had a railway station, making it easily accessible from Lwów and other major cities. Year-round rail service allowed visitors to arrive and depart at convenient times, while special bus lines connected the resort to nearby towns. The train station featured an information bureau where visitors could learn about accommodation, therapeutic treatments, and local attractions.[51] Zaleszczyki also had direct railway connections to major cities in the southeastern provinces, making the resort convenient for tourists from other regions of Poland. Passengers arriving at the station were offered luggage transportation services and transfers to the hotels. Given the resort's popularity, the station also had an information desk that provided details about therapeutic procedures, entertainment, and excursions. Niemirów was also connected to the country's railway network, and seasonal bus routes facilitated access to the resort. A small bureau was available for consultations and to guide tourists, providing information about guesthouses, sanatoriums, and available leisure and treatment options. Niemirów was known for its secluded atmosphere, and transportation services allowed visitors to easily reach the resort while enjoying its tranquility. Szkło was located at a considerable distance from major transport hubs, making it more isolated, but access was possible via buses and seasonal railway connections. The resort also had a guest support service where visitors could learn about the schedule of treatments, activities, and room availability. Lubień Wielki

[49] *Informator podróżniczo-turystyczny na rok 1937/38*, Warszawa 1937, p. 223.

[50] H. Piotrowski (ed.), *Przewodnik zdrojowo-turystyczny na 1931-1932 r.*, Wydział zjednoczonych pracowników niewidomych Rzeczypospolitej Polskiej, Warszawa 1931, p. 152.

[51] *Informator podróżniczo-turystyczny,* op. cit., p. 224.

was one of the resorts with a well-developed transportation system. Railway connections with nearby cities provided convenient access, and transportation services were also organized for tourists arriving with luggage. The resort's information center provided tourists with all the details about treatments, leisure activities, treatment schedules, and relaxation options. Huta Stepańska was considered a rather remote resort, located in the quiet wilderness of Volhynia, known for its natural beauty and tranquility, but it required more complex logistics. Access to Huta Stepańska was provided by seasonal bus lines and private transport. Information services were less developed, but visitors were provided with reference materials and maps. The resorts aimed to ensure convenient transportation routes and on-site support for guests, making the trip comfortable and accessible. Direct railway connections and seasonal bus lines played a key role in allowing tourists to comfortably reach the resorts and return home.[52] Information bureaus and support services helped visitors navigate the resorts, contributing to the growth of tourism and increasing the popularity of the resort destinations.

Conclusion

In the interwar period, the resorts of Lwów, Wołyń, and Tarnopol Voivodeships played a crucial role in the development of both tourism and healthcare. These balneological resorts, with their natural resources and medical capabilities, became centers of attraction for both Polish tourists from across the interwar Poland and international visitors. Major resorts such as Truskawiec and Niemirów specialized in treating gastrointestinal diseases, urinary and reproductive system issues, respiratory conditions, and musculoskeletal disorders. The treatment methods used, including mineral baths, mud therapy, and inhalations, not only helped restore health but also maintained a high level of scientific and medical traditions. The development of infrastructure at the resorts, especially in Truskawiec, contributed to the creation of comfortable conditions for visitors. The resorts offered a variety of accommodation options, ranging from luxurious hotels and guesthouses to more modest rest homes and villas. In the larger resorts, there was a well-developed system of dietary nutrition and sanatorium services, which attracted a specific category of tourists. At the same time, smaller resorts, such as Szkło and Huta Stepańska, offered limited accommodation options, reflecting their lesser popularity and more restricted visitor numbers. The frequency of visits also varied significantly depending on the size of

[52] K. Kałczyński (ed.), *Informator turystyczny na rok 1935*, Polski Touring Klub, Warszawa 1935, p. 214.

the resort and the level of service provided. Truskawiec and Niemirów attracted tens of thousands of tourists annually, while the smaller resorts served only a few hundred visitors. This was also influenced by seasonal variations, with the peak of visits occurring during the summer months when the climatic conditions were most suitable for therapeutic treatments and nature-based recreation. Tourist flows at the resorts reflected their medical specialization, infrastructure, and accessibility to visitors. Despite the focus on medical treatments, the resorts also offered a variety of leisure activities. The larger resorts organized cultural events, such as concerts and exhibitions, which helped visitors not only restore their health but also diversify their leisure time. Smaller resorts, mainly focused on health tourism, provided a more peaceful atmosphere for relaxation, combining therapeutic treatments with natural landscapes and relaxation. The resorts of Lwów, Wołyń, and Tarnopol Voivodeships significantly contributed to the region's economic development by creating jobs and attracting tourists. However, uneven infrastructure development across different areas led to variations in the level of service and the number of visitors to the resorts. At the same time, they became an important element of social life, supporting cultural and scientific activities, and played a significant role in shaping Poland's overall image as a tourist destination, with its southeastern regions becoming an important hub for health tourism. Thus, the resorts of Lwów, Wołyń, and Tarnopol Voivodeships not only provided medical treatment but also became key centers for cultural exchange, influencing the development of tourism and healthcare in interwar Poland.

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Włodzimierz Gański: Conceptualization; Methodology; Investigation; Data Curation; Funding acquisition; Writing – Original Draft Preparation; Writing – Review and Editing.
Mariya Fleychuk: Formal analysis; Methodology; Resources; Software; Validation; Visualization; Writing – Original Draft Preparation; Writing – Review and Editing.

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CZECHOSLOVAK PHYSICAL EDUCATION UNION: THE CENTRAL CZECHOSLOVAK PHYSICAL EDUCATION ORGANIZATION IN 1946–1948

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Czechosłowacki Związek Wychowania Fizycznego: Centralna czechosłowacka organizacja wychowania fizycznego w latach 1946–1948

Streszczenie

Czechosłowacki Związek Wychowania Fizycznego został założony w Pradze w 1946 roku, zastępując pierwotnie planowany Centralny Narodowy Komitet Wychowania Fizycznego. Jego członkami były centralne związki wychowania fizycznego funkcjonujące na terenie Czechosłowacji, których działalność obejmowała wychowanie fizyczne, sport, turystykę lub skauting, a także Czechosłowacki Komitet Olimpijski. Każda dyscyplina sportowa mogła być reprezentowana w związku wyłącznie przez jedno centralne stowarzyszenie. Poszczególni członkowie dobrowolnie współpracowali w ramach propagowania swoich programów. Celem stowarzyszenia była troska o rozwój wychowania fizycznego w najszerszych warstwach społeczeństwa, jego doskonalenie oraz ochrona interesów w Czechosłowacji i za granicą. Przy realizacji tych zadań uwzględniano odpowiednią reprezentację Czechów i Słowaków. Związki członkowskie i ich niższe struktury organizacyjne zachowywały jednak swoją prawną niezależność, zgodnie ze swoimi statutami i regulaminami. Jednocześnie miały obowiązek przestrzegania zasad i regulaminów wydanych przez Czechosłowacki Związek Wychowania Fizycznego. Związek ten miał stać się podstawą organizacyjną dla federacyjnego zjednoczenia wychowania fizycznego. Faktyczne zjednoczenie czechosłowackiego wychowania fizycznego nastąpiło dopiero po komunistycznym przewrocie w 1948 roku, po którym potrzeba istnienia Czechosłowackiego Związku Wychowania Fizycznego przestała istnieć.

Słowa kluczowe: Czechosłowacki Związek Wychowania Fizycznego; wychowanie fizyczne, sport i turystyka; zjednoczenie czechosłowackiego wychowania fizycznego

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Abstract

The Czechoslovak Physical Education Union was established in Prague in 1946, replacing the originally planned Central National Physical Education Committee. Its members included central physical education unions operating in Czechoslovakia, which focused on physical education, sports, tourism, or scouting, as well as the Czechoslovak Olympic Committee. However, each sport could only be represented in the Union by one central organization. Individual members voluntarily cooperated in promoting their own programs. The Union's purpose was to promote the expansion of physical education among the broadest segments of the population, to improve its quality, and to protect related interests in Czechoslovakia and abroad. In pursuing these objectives, attention was paid to ensuring adequate representation of both Czechs and Slovaks. Member unions and their affiliated lower organizational units retained their legal independence according to their statutes and regulations. At the same time, they were obliged to adhere to the rules and regulations issued by the Czechoslovak Physical Education Union. The Union was intended to serve as the organizational foundation for unifying physical education at a federal level. However, the actual unification of Czechoslovak physical education occurred only after the communist coup in 1948, after which the need for the existence of the Czechoslovak Physical Education Union ceased.

Keywords: Czechoslovak Physical Education Union; physical education, sports, and tourism; unification of Czechoslovak physical education.

Introduction

After the liberation of Czechoslovakia in May 1945, the primary issue for Czechoslovak physical education became its unification and the elimination of pre-war fragmentation, which had been partly caused by the influences and interests of various political parties. The necessity of unifying Czechoslovak physical education was already expressed in the government's declaration in April 1945. In the first half of May 1945, the ÚNTV (Ústřední národní tělovýchovný výbor – Central National Physical Education Committee) was established, with the aim of preparing the organic unification of Czechoslovak physical education and sports. This was, therefore, more of a preparatory body rather than an association with formal statutes.

On December 18, 1945, a meeting was convened for representatives of all physical education organizations and unions to determine which of them supported the organic unification of Czechoslovak physical education. The following organizations expressed their support: ČOS (Československá obec sokolská – Czechoslovak Sokol Community), SDTJ (Svaz dělnických tělocvičných jednot – Union of Workers' Gymnastic Associations), FPT (Federace proletářské tělovýchovy – Federation of Proletarian Physical Education), the Czechoslovak Ski Federation, ČAAU (Česká amatérská atletická unie – Czech Amateur Athletic Union), the Volleyball and Basketball Union, the Mountaineering Union, the Swimming Union, the Rugby Union, trade union physical education under the ÚRO (Ústřední rada odborů – Central Trade Union Council), and SČM (Svaz české mlá-

deže – Union of Czech Youth).[1] Subsequently, a meeting of these unions was convened for January 10, 1946, to discuss the formation of a unified organization.

At this meeting, however, representatives of ČOS declared—referring to the resolution of their Committee from December 16, 1945—that they favored a federative union. The resolution stated that "if the complete unification of physical education is not achieved by the end of 1945, ČOS will commence independent activities."[2] The partial unification of only some physical education and sports organizations did not suit the Sokol organization. Therefore, a meeting was convened for January 14, 1946, involving ČOS, SDTJ, FPT, representatives of athletes, Junák,[3] the Czechoslovak Football Association, and Czechoslovak Orel, which, however, sent its apologies for being unable to attend.

The outcome of this meeting was an agreement to establish a preparatory committee, which consisted of two representatives each from ČOS, SDTJ, FPT, Czechoslovak Orel, and Junák, as well as four representatives from the ČVV (Československý všesportovní výbor – Czechoslovak All-Sports Committee). This preparatory committee was tasked with addressing the situation further.[4]

The ÚNTV, whose goal was to organically unify all Czechoslovak physical education into a single organization, failed to fulfill its purpose. For this reason, the principles for building a new unified organization—later named ČSTS (Československý tělovýchovný svaz – Czechoslovak Physical Education Union) — were adopted at the committee's presidium meeting on February 4, 1946.[5]

Public interest in this new organization increased due to an initiative by the MŠO (Ministerstvo školství a osvěty – Ministry of Education and Enlightenment), which sent questionnaires to all municipalities. These instructed local national committees to convene plenary meetings of gymnastic, sports, scouting, and tourist organizations, with the general public also invited in large numbers. At these meetings, votes were taken on the stance regarding the unification of Czechoslovak physical education.

However, Czechoslovak physical education, sports, scouting, and tourist organizations struggled for a long time to find common ground for unification. It was not until April 2, 1946, at their joint meeting, that the establishment of the ČSTS was agreed upon. This organization was to be

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1 On the other hand, the Czechoslovak Football Union, Junák, and the Czechoslovak Orel opposed organic unification.

2 National archives in Prague, Fund ČSTS, Box 3, Sg. 12, Korespondence 1946 (I-VI), Zemský národní výbor v Praze XVI.-Smíchov, dne 19. února 1946.

3 Junák was and still is the Czechoslovak/Czech scouting organization.

4 National archives in Prague, Fund ČSTS, Box 3, Sg. 12, Korespondence 1946 (I-VI), Zemský národní výbor v Praze XVI.-Smíchov, dne 19. února 1946.

5 National archives in Prague, Fund ČSTS, Box 1, Sg. 4, Valná hromada 1946, Zásady pro vybudování jednotné tělovýchovné organisace. Návrhy ze schůze předsednictva ÚNTV dne 4. února 1946.

> the highest supervisory and decision-making authority in all fundamental matters, particularly in issues of military training, state-political education, unified health and social care, amateurism, participation in international physical education events, issuance of fundamental guidelines for physical education relations abroad in terms of state interests, and in deciding all matters of a national or collective significance for the entire realm of physical education.[6]

It was meant to be a new organization based on the federative principle. These principles were also presented at the preparatory committee meeting of the ČSTS, where the majority of those present (representatives of more than 30 unions) expressed their agreement. The only opposers were SDTJ, FPT, SČM, and corporate physical education under the ÚRO.[7]

Research Problems and Methods

The aim of this paper is to provide a detailed account of the history of the ČSTS, to describe its functioning and purpose, and to outline the events that led to its establishment and subsequent dissolution.

This is a standard historical study focusing on modern Czechoslovak history, specifically the history of physical education and sport. The methodological approach of this paper is primarily based on content analysis of documents found in archival collections, printed sources, periodicals, and scholarly literature.

One of the fundamental methods used in this study is the direct method. By applying this classical historical research method, the historical origins, develop-

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[6] Government officials emphasized from the beginning of the unification efforts that it was to be a voluntary merger agreement. National archives in Prague, Fund ČSTS, Box 3, Sg. 12, Korespondence 1946 (I-VI), Dr. Antonín Hřebík, předseda ÚNTV a předseda Přípravného výboru Čsl. tělovýchovného svazu: O sjednocení tělesné výchovy.

[7] SDTJ, like FPT, insisted on the organic unification of all Czechoslovak physical education. One of the reasons for FPT's stance was that this organization did not possess much property, which it could have gained through organic unification (primarily property belonging to ČOS). For this reason, the FPT central office sent written instructions to its members regarding the formation of the ČSTS, which were to be destroyed after being read. The instructions stated, among other things, "…It is well known to all of you the position of our central office, and it is crucial that this vote be carried out in line with the latest FPT declaration. All FPT organizations, even those in areas where they are not yet established, will declare in favor of the organic unification of physical education and will make every effort to ensure that other organizations, especially sports organizations and Sokol, make the same declaration…". National archives in Prague, Fund ČSTS, Box 3, Sg. 12, Korespondence 1946 (I-VI), Svaz dělnických tělocvičných jednot československých Ústřednímu národnímu tělovýchovnému výboru, dne 25. dubna 1946. National archives in Prague, Fund ČSTS, Box 3, Sg. 12, Korespondence 1946 (I-VI), Blíže neoznačený dokument FPT. S pokynem *„Po provedení zničit"*, dne 24. dubna 1946. National archives in Prague, Fund ČSTS, Box 1, Sg. 4, Valná hromada 1946, Zápis o poradě přípravného výboru Československého tělovýchovného svazu, konané dne 2 dubna 1946 o 16.hod. v zasedací síni Tyršova domu v Praze III.

ment, and dissolution of the ČSTS are described based on the study of primary sources. The manner in which historical facts were examined and recorded largely aligns with the progressive method, as events were presented in chronological order, moving from earlier to later periods.

The primary sources for this research were archival documents. Additional sources, including various reports and statements from different physical education associations, were used mainly to supplement information and provide insights into their perspectives on the functioning of the ČSTS and the unification of Czechoslovak physical education.

The Establishment of the ČSTS

On June 30, 1946, the offices of the ÚNTV in Prague were dissolved, and their employees were transferred to the newly forming ČSTS, which also took over all the agenda from its predecessor.[8] By this time, discussions about the upcoming inaugural general assembly were already in full swing, and it was scheduled for July 12, 1946. However, some organizations, such as Junák, requested its postponement, wanting to wait for the outcome of government discussions concerning the ČSTS.[9]

In Slovakia, meanwhile, a Preparatory Committee for the Unification of Slovak Physical Education was established in July 1946. This committee consisted of representatives from all sports associations, tourism and physical education departments, Sokol, RTJ (*Robotnická* tělocvičná jednota – Workers' Gymnastic Union), and SSM (Svaz slovenské mládeže – Union of Slovak Youth). Its task was to unify all physical education, sports, and tourism organizations in Slovakia. This organization was the only one in Slovakia authorized to negotiate the unification of all physical education, sports, and tourism in Czechoslovakia. The unified physical education in Bohemia and Slovakia was then to create a joint central body headquartered in Prague.[10]

The preparatory inaugural general assembly of the ČSTS took place on November 16, 1946, at Tyrš's House in Prague III,[11] with representatives of 16

[8] National archives in Prague, Fund ČSTS, Box 3, Sg. 12, Korespondence 1946 (I-VI), ČSTS Úřadu práce v Praze, dne 4. července 1946.

[9] Junák was incorporated into the SČM by government directive, and the SČM, as previously mentioned, opposed the establishment of the ČSTS. Consequently, Junák reportedly felt obliged to wait for the outcomes of the government discussions. National archives in Prague, Fund ČSTS, Box 3, Sg. 12, Korespondence 1946 (I-VI), Junák, ústředí skautské výchovy bratrskému Československému tělovýchovnému svazu, dne 21. června 1946.

[10] National archives in Prague, Fund ČSTS, Box 4, Sg. 12, Korespondence 1946 (VII-XII), Prípravný výbor čsl. tělovýchovného sväzu, k rukám Dr. Hřebíka, dne 20. července 1946.

[11] National archives in Prague, Fund ČSTS, Box 1, Sg. 3, Přípravná jednání 1946, Zápis o předporadě valné hromady Československého tělovýchovného svazu v Praze dne 15. listopadu t.r.

Czechoslovak physical education, sports, and tourism associations in attendance. The following day, the agreement on the establishment of the ČSTS and its founding charter was signed. A total of 37 organizations (see Table 1), collectively comprising around two million members, signed the document. Antonín Hřebík, the chairman of the most prominent organization, ČOS, was appointed as the head of the ČSTS.

> The undersigned organizations, through a voluntary agreement, establish the Czechoslovak Physical Education Union, whose ultimate goal is to achieve the greatest possible development and improvement of physical education in all its branches – i.e., in gymnastics, sports, scouting, and tourism – so that the physical health, mental fitness, and moral integrity of the broadest segments of the population may be enhanced, and so that the Czech and Slovak nations may honorably compete in international and interstate events and appearances.
>
> To this end, the undersigned organizations aim to achieve their goals through the closest mutual cooperation.[12]

Table 1. Signatories of the Founding Charter of the ČSTS

Czechoslovak Sokol Community (Československá obec sokolská)	Czechoslovak Table Tennis Union (Československý svaz stolního tennisu)	Czechoslovak Yachting Association (Československá yachetní asociace)
Czechoslovak Orel (Československý Orel)	Czechoslovak Rugby Union (Československý svaz rugby)	Czech Fencing Union – Slovak Fencing Union (Český šermířský svaz – Slovenský šermovnický sväz)
Union of Czechoslovak Workers' Gymnastic Units (Svaz dělnických tělovýchovných jednot čsl.)	Golf Union of the Czechoslovak Republic (Golfový svaz Č.S.R.)	Czech Rowing Union – Slovak Rowing Union (Český veslařský svaz – Slovenský veslárský sväz)
Club of Czech Tourists (Klub českých turistů)	Czechoslovak Auto Club (Autoklub R.Č.S.)	Czech Amateur Athletic Union – Slovak Athletics Union (Česká amatérská atletická unie – Slovenský lehkoatletický sväz)
Czechoslovak Tourist Community (Československá obec turistická)	Czechoslovak Canoeing Central Office (Československé ústředí kanoistiky)	Czech Basketball Union – Slovak Basketball Union (Český basketballový svaz – Slovenský basketballový sväz)
Mountain Association "Radhošť" (Pohorská jednota „Radhošť“)	Czechoslovak Mountaineering Union (Svaz československých horolezců)	Czech Archery Union (Český svaz lukostřelecký)

v Tyršově domě v Praze III. National archives in Prague, Fund ČSTS, Box 1, Sg. 4, Valná hromada 1946, Vládě republiky Československé!, dne 3. prosince 1946.

[12] National archives in Prague, Fund ČSTS, Box 1, Sg. 4, Valná hromada 1946, Společné prohlášení k založení ČSTS.

Table 1. Signatories of the Founding Charter of the ČSTS (cont.)

Czechoslovak Olympic Committee (Československý olympijský výbor)	Czechoslovak Walking Union (Československý chodecký svaz)	Czechoslovak Ski Federation (Svaz lyžařů R.Č.S.)
Czechoslovak Amateur Boxing Union (Československý unie boxerů amatérů)	Czechoslovak Amateur Swimming Union (Československý amatérský plavecký svaz)	Czechoslovak Handball Union (Československý svaz házené)
Czechoslovak Cycling Central Office (Československé ústředí cyklistů)	Czechoslovak Football Association Československá asociace footballová)	Czechoslovak Skating Union (Československý bruslařský svaz)
Czechoslovak Bowling Sports Association (Československá asociace kuželkářského sportu)	Czech Field Hockey Union (Český svaz pozemního hockeye)	Czechoslovak Jiu-Jitsu Union (Československý svaz jiu jitsu)
Czechoslovak Lawn Tennis Association (Československá lawntenisová asociace)	Czechoslovak Volleyball Central Office (Československé voleyballové ústředí)	Czechoslovak Heavy Athletics Union (Československý svaz těžké atletiky)
Czechoslovak Ice Hockey Central Office (Československé ústředí ledního hockeye)	Czechoslovak Equestrian Union (Československý jezdecký svaz)	Slovak Scout (Slovenský junák)
Slovak Tourist and Ski Club (Klub slovenských turistů a lyžařů)		

Source: National archives in Prague, Fund ČSTS, Box 1, Sg. 4, Valná hromada 1946, Zakládající listina ČSTS.

The ČVV did not become a member of the ČSTS.[13] Its chairman, Rudolf Kaiser, announced that after the establishment of the ČSTS, the organization had lost its significance and would cease operations after settling all financial obligations.[14] Conversely, during 1946, the Union of Czech All-Sports Referees applied

[13] It was an organization established in the late 1920s, tasked with overseeing all physical education and sports within the republic and representing them abroad. Tlustý T., Československý všesportovní výbor: Vrcholný orgán meziválečného československého sportu, "Česká Kinantropologie" 2022, vol. 26, no. 1–2, pp. 119–134.

[14] National archives in Prague, Fund ČSTS, Box 2, Sg. 9, Presidiální rada 1947, Zápis o schůzi presidiální rady ČSTS, dne 14. ledna 1947 o 18 hod. v Tyršově domě v Praze. Along with the ČVV, the Slovak Central Sports Council was to be dissolved in Slovakia, and in its place, the Slovak Physical Education Council was to be created. National archives in Prague, Fund ČSTS, Box 2, Sg. 8, Předsednictvo 1946-1948, Předlohy pro schůzi předsednictva ČSTS dne 21. ledna 1947 v Praze.

for membership. However, the ČSTS presidium unanimously decided to reject the application, reasoning that it was not a physical education organization.[15]

The statutes were sent to the Ministry of the Interior for approval on November 23, 1946. A formal founding general assembly was then held on December 16.[16] It was not until May 10, 1947, that the Ministry of the Interior returned the statutes with a positive endorsement. This officially authorized the operation of the ČSTS.[17]

The purpose of the ČSTS was to serve as a unifying body for its individual members, resolve disputes between them, represent Czechoslovak physical education in matters common to all members during negotiations with authorities, acquire and manage property and funds allocated for all Czechoslovak physical education purposes, contribute to the drafting of fundamental guidelines and organizational principles for emerging sports disciplines, monitor all branches of physical education, compile relevant data, publish professional literature, and maintain a specialist library. It also aimed to organize lectures, exhibitions, performances, and ČSTS congresses, secure financial support for members, and participate in initiatives beneficial to Czechoslovak physical education.[18]

Program and Organization of ČSTS

The path taken by the ČSTS was fully aligned with the Košice Government Program, which in Article 5 stated that "the people shall have the right to create voluntary organizations of various kinds—political, trade union, cooperative, cultural, sports, and others—and to exercise their democratic rights through them."[19] Additionally, the direction of the ČSTS corresponded to the building program of Gottwald's government, which in Section IV declared that the government aimed to "democratically unify Czechoslovak youth and physical education into unified, nationwide, and nonpartisan organizations based on a national, state-building, and democratic program."[20]

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[15] National archives in Prague, Fund ČSTS, Box 2, Sg. 8, Předsednictvo 1946-1948, Zápis o poradě předsednictva Československého tělovýchovného svazu dne 3. prosince 1946 v Tyršově domě.

[16] National archives in Prague, Fund ČSTS, Box 4, Sg. 12, Korespondence 1946 (VII-XII), Ustavení Československého tělovýchovného svazu, dne 14. prosince 1946.

[17] National archives in Prague, Fund ČSTS, Box 2, Sg. 6, Ministerstvo vnitra 1946-1947, Ministerstvo vnitra dr. Antonínu Hřebíkovi, dne 10. května 1947.

[18] National archives in Prague, Fund ČSTS, Box 1, Sg. 3, Přípravná jednání 1946, Stanovy Československého tělovýchovného svazu. In addition, it managed tasks such as the distribution and allocation of scarce sports equipment, such as ball bladders, which were in short supply at the time. National archives in Prague, Fund ČSTS, Box 3, Sg. 12, Korespondence 1946 (I-VI), ČSTS Josefu Fejtkovi, dne 8. července 1946.

[19] National archives in Prague, Fund KSČ-ÚV-KG, Box 172, Sg. 1532, Program nové československé vlády Národní fronty Čechů a Slováků.

[20] National archives in Prague, Fund ČSTS, Box 4, Sg. 12, Korespondence 1946 (VII-XII), Československý tělovýchovný svaz.

According to the statutes, members of the ČSTS were central physical education unions operating within Czechoslovakia whose fields included physical education, sports, scouting,[21] or tourism, as well as the ČOV (Československý olympijský výbor - Czechoslovak Olympic Committee).[22] However, each type of sport could be represented in the ČSTS by only one central organization.[23] Slovak members of the ČSTS Committee were simultaneously members of the Slovak Physical Education Council,[24] through which the ČSTS operated in Slovakia. The committee consisted of 36 members, nine of whom were Slovak representatives.[25]

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[21] The Central Council of Junák decided at its meeting on November 10, 1946, that the organization would not join the ČSTS, stating that "Junák, as a supplementary youth educational organization, does not belong in physical education." However, in March 1947, it acknowledged the possibility of establishing cooperation, specifically "…in the fields of health, defense education, and others…". National archives in Prague, Fund ČSTS, Box 1, Sg. 4, Valná hromada 1946, JUNÁK, ústředí skautské výchovy, dne 15. listopadu 1946. National archives in Prague, Fund ČSTS, Box 2, Sg. 11, Porady 1947-1948, Zápis o poradě zástupců ČSTS se zástupci Junáka, dne 18. 3. 1947 v Praze.

[22] The ČOV, on the other hand, had no voting rights, as it was not a physical education union. The agreement between the ČSTS and the ČOV specified that the selection of athletes for the Olympic Games fell under the jurisdiction of the ČSTS. The ČOV then verified whether the selected athletes met the conditions set by the International Olympic Committee (IOC) and arranged their participation. Thus, the ČOV functioned as a mediator between the ČSTS and the IOC. The mutual agreement between the ČSTS and the ČOV stipulated that only athletes performing at an international level would be sent to the Olympics. The selection was not to be made solely for gaining experience. Conversely, the ČOV determined the number of official delegates. National archives in Prague, Fund ČSTS, Box 2, Sg. 11, Porady 1947-1948, Návrh dohody mezi Československým tělovýchovným svazem a Československým Olympijským Výborem.

[23] Member unions and their subordinate "lower units" retained their legal autonomy in accordance with their own statutes and regulations.

[24] The Slovak Physical Education Council was a subsidiary association of the ČSTS, based in Bratislava. Its founding General Assembly took place on June 15, 1947, presided over by the chairman of its preparatory committee, Konštantín Čársky. Simultaneously, the Slovak Central Sports Council operated in the same space, with its staff playing a significant role in the establishment of the new institution. On that day, the attending delegates approved the statutes and appointed the presidium. Konštantín Čársky was unanimously elected as the chairman of the Slovak Physical Education Council. The Slovak Physical Education Council was the highest non-political physical education organization in Slovakia and the sole subsidiary association of the ČSTS. It held exclusive authority in matters of Slovak physical education while implementing ČSTS decisions in nationwide physical education matters. Its purpose closely mirrored that of the ČSTS. National archives in Prague, Fund ČSTS, Box 2, Sg. 10, Slovenská tělovýchovná rada 1946-1947, Zápisnica z ustavujúceho valného shromaždenia Slovenskej telovýchovnaj rady. National archives in Prague, Fund ČSTS, Box 2, Sg. 10, Slovenská tělovýchovná rada 1946-1947, Stanovy Slovenskej telovýchovnaj rady.

[25] National archives in Prague, Fund ČSTS, Box 1, Sg. 3, Přípravná jednání 1946, Stanovy Československého tělovýchovného svazu.

Membership fees provided the ČSTS with financial resources for its activities. Additional income sources included donations, bequests, organized events, fundraising, lotteries, and subsidies.[26]

Matters of the association were overseen by the General Assembly, the Committee, the Presidium, and economic and accounting supervisors. The ČSTS held both regular and extraordinary General Assemblies. Their responsibilities included approving minutes from previous assemblies, examining and approving the activities and reports of the Committee, electing the chairman, vice-chairmen, and Committee members, determining membership fee amounts, and deciding on amendments to the statutes.

Representatives of member unions with voting and decision-making rights participated in the General Assemblies. For every 25,000 members (or fraction thereof), a member union could send three representatives, one of whom had to be from Slovakia. Regular General Assemblies were convened annually by the chairman, while extraordinary assemblies could be called as needed.

The committee consisted of 100 members, including 25 from Slovakia, alongside the chairman, five vice-chairmen,[27] a secretary, a treasurer, an accountant, a recording secretary, and other officials as necessary. The committee met as needed, but at least four times a year. It was responsible for deciding about all matters binding for the entire ČSTS membership, establishing principles, regulations, and rules, and reviewing and approving the activities of the presidium. Additionally, it established departments and commissions (e.g., educational, health, technical) and adjusted procedural rules and the responsibilities of individual committee members within the bounds of the statutes.

The presidium comprised 39 members, nine of whom were from Slovakia. Its members included the chairman, five vice-chairmen, two secretaries, an international secretary, the chairman of the men's technical committee, the chairwoman of the women's technical committee,[28] a treasurer, two accountants,

[26] For example, the MŠO granted the ČSTS a subsidy of 100,000 Kčs for 1946. Additionally, the ČSTS was to receive 30% of the net profits from betting operations, as proposed by the Ministry of Finance (initially, a 40% share was discussed, but the reduction was met with resistance from the ČSTS). These funds were earmarked for developing sports facilities—stadiums, playgrounds, swimming pools, and similar infrastructure. National archives in Prague, Fund ČSTS, Box 2, Sg. 8, Předsednictvo 1946-1948, Předlohy pro schůzi předsednictva ČSTS dne 21. ledna 1947 v Praze. National archives in Prague, Fund ČSTS, Box 5, Sg. 12, Korespondence 1947-1948, Blíže neoznačený dopis Ministerstvu financí Československé republiky.

[27] The chairman or the first vice-chairman served as Slovakia's representative. The remaining four vice-chairmen always represented one of the following branches: physical education, sports, scouting, and tourism.

[28] Initially, the meetings of the two technical commissions were organized separately. However, on February 28, 1947, it was agreed that they would convene jointly as they addressed similar issues. Their responsibilities included tasks such as creating a calendar of physical education

two recording secretaries, and other members. The presidium convened monthly and managed the internal and external operations of the ČSTS, oversaw the association's assets, and decided on all matters not assigned to the general assembly or the committee.[29]

On December 17, 1946, during a meeting of the ČSTS presidential council,[30] it was agreed that 10 commissions would be established.[31] Each commission would have a chairman and three vice-chairmen, ensuring representation from all branches of physical education. One of the four presidium members of each commission had to be a representative from Slovakia. The following commissions and proposed chairmen were planned:

1. Organizational Commission: L. Vaverka
2. Defense Commission: Fr. Leiner
3. Men's Technical Commission: M. Kavalír
4. Women's Technical Commission: M. Patočková
5. Economic and Financial Commission: Dr. Beneš
6. Complaints Commission: K. Popel
7. International Commission: Fr. Bertl
8. Press and Propaganda Commission: O. Bureš
9. Health Commission: E. Mathé
10. Personnel Commission: Dr. Drábek[32]

In addition to commissions, ČSTS established departments to manage the tasks arising from its activities. These departments served as advisory and initiative bodies for the ČSTS presidium and committee. Each federation affiliated

events, organizing training sessions for instructors, managing member recreation and outdoor activities, developing physical education curricula for both youth and adults, and fostering collaboration among those interested in using physical education facilities. National archives in Prague, Fund ČSTS, Box 2, Sg. 7, Výbor 1946-1947, Zpráva odboru žen ČSTS. National archives in Prague, Fund ČSTS, Box 2, Sg. 7, Výbor 1946-1947, Technický odbor mužů.

[29] National archives in Prague, Fund ČSTS, Box 1, Sg. 3, Přípravná jednání 1946, Stanovy Československého tělovýchovného svazu.

[30] According to a proposal by Antonín Hřebík on December 3, 1946, the presidential council consisted of ČSTS presidium officials. Its members included the chairman, vice-chairmen, three secretaries, an international secretary, the chairmen of the technical commissions, the treasurer, two accountants, and two recording secretaries. The council met biweekly. National archives in Prague, Fund ČSTS, Box 2, Sg. 8, Předsednictvo 1946-1948, Zápis o poradě předsednictva Československého tělovýchovného svazu dne 3. prosince 1946 v Tyršově domě.

[31] The original proposal presented by Antonín Hřebík at a ČSTS presidium meeting on December 3, 1946, initially envisioned only three commissions: an organizational commission, a men's technical commission, and a women's technical commission. National archives in Prague, Fund ČSTS, Box 2, Sg. 8, Předsednictvo 1946-1948, Zápis o poradě předsednictva Československého tělovýchovného svazu dne 3. prosince 1946 v Tyršově domě.

[32] Later, these ČSTS commissions were reorganized into larger departments. National archives in Prague, Fund ČSTS, Box 2, Sg. 9, Presidiální rada 1947, Zápis o schůzi presidiální rady Československého tělovýchovného svazu dne 17. prosince 1946 v Tyršově domě v Praze.

with ČSTS appointed a representative to every department, except for departments with very specific competencies whose members were elected by the ČSTS presidium. Federations also had the right to replace their representatives in departments if needed.

Departments also included representatives from ministries,[33] the Defense Association,[34] and other national organizations cooperating with ČSTS. The tenure of the departments lasted until the next general assembly, which re-established the departments. Each department's activities were led by a chairman elected by the ČSTS presidium. The chairman was supported by three vice-chairmen and a recording secretary, elected by department members using the same procedure as for commissions.

Departments convened as needed, but at least once every two months.[35] A department could deliberate and adopt resolutions only if at least one-third of its members were present. Resolutions required a majority vote from those present, with the chairman casting the deciding vote in case of a tie.[36]

All governing bodies of ČSTS required the presence of at least half of their members to be considered quorate. Members who authorized a representative in writing were also counted as present. Resolutions needed a majority of votes from those present. For nationwide matters, a majority was required from both the Czech lands and Slovakia.

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[33] On December 3, 1946, it was agreed that Miroslav Klinger, Head of Sector C of the MŠO, and Dr. Chovan would be invited to join the ČSTS presidium and committee. This was intended to establish close cooperation with this sector. National archives in Prague, Fund ČSTS, Box 2, Sg. 8, Předsednictvo 1946-1948, Předlohy pro schůzi předsednictva Československého tělovýchovného svazu, dne 3. prosince 1946 v Tyršově domě v Praze III.

[34] The Defense Association (Svaz brannosti) was founded by a decree of President Edvard Beneš on October 27, 1945, through the merger of the Union of Czechoslovak Officers, the Union of National Shooting Guards, the Union of Czechoslovak Warrant Officers, and the Union of Czechoslovak Reservists. It consisted of military-organized units that could be used as guards, patrol units, combat groups for auxiliary military services, and air defense. During 1946–1947, considerable resources were invested in establishing defense education inspectorates, where all defense education and civilian preparedness training were to be carried out. However, after two years of activity, the Defense Association was unable to demonstrate any significant organized achievements aside from participating in various public celebrations and organizing a few events that were more sports-oriented than defense-focused. By the end of 1947, it had not succeeded in unifying the activities of its military-organized units. At the end of November 1947, discussions began about incorporating its Sports Shooting Section into ČSTS. Svaz brannosti, https://www.svaz-brannosti.cz/historie/ [accessed: 10th September 2024]. National archives in Prague, Fund ČSTS, Box 8, Sg. 13, Schůze org. odboru, 1947, Zápis o schůzi organizačního odboru ČsTV, konané dne 28. 11. 1947 ve Svazu dělnických tělovýchovných jednot v Praze II., Hyberské ul. 7.

[35] National archives in Prague, Fund ČSTS, Box 2, Sg. 9, Presidiální rada 1947, Řád odborů a komisí Československého tělovýchovného svazu.

[36] National archives in Prague, Fund ČSTS, Box 2, Sg. 8, Předsednictvo 1946-1948, Řád odborů a komisí Československého tělovýchovného svazu.

Disputes between ČSTS members were resolved by a five-member arbitration court, whose decisions were final. Honorary disputes between officials were settled by an honorary court, also composed of five members, whose rulings were equally final.[37]

The ČSTS also had lower-level bodies. Its plan was for representatives of Sokol, Czechoslovak Orel, Junák, and sports and tourist clubs in each town to form a local physical education council of the ČSTS. Each association or club was to send two representatives. In smaller municipalities with 2-3 active clubs, three representatives were sent, while in larger towns, multiple local physical education councils could be formed as needed. At their inaugural or annual meetings, these councils elected a chairman, along with two vice-chairmen, a secretary, a treasurer, and an auditor. The officials' term lasted one year.

These councils were advisory, initiative-based, and operational bodies, governed by the statutes issued by the ČSTS committee. However, they were not authorized to interfere in the internal activities of individual affiliated associations or clubs or compromise their independence. Their tasks included maintaining a yearly calendar of local physical education events, encouraging participation and cooperation among physical education associations in these events, organizing joint physical education events, fostering collaboration among affiliated associations and clubs, providing medical care at physical education events, and working with local school authorities to enhance physical education for youth in schools. They also aimed to persuade municipalities to secure land for physical education purposes, propose the establishment of recreational facilities, and advocate for physical education interests with local national committees and other public administration bodies.

Local physical education councils could hold meetings and make decisions only if two-thirds of the members were present and all associations were represented. Decisions required a majority vote of the members present. When organizing joint events, the council shared financing among all participating associations, while any profits were divided between the council's treasury and the participating associations.[38]

In October 1947, during a ČSTS presidium meeting, it was decided that new roles would be established in public care for physical education at local and district national committees. These included a physical education and defense education officer and a corresponding committee. Their task was to assist in expanding and deepening physical and defense education within the jurisdiction

[37] National archives in Prague, Fund ČSTS, Box 1, Sg. 3, Přípravná jednání 1946, Stanovy Československého tělovýchovného svazu.

[38] National archives in Prague, Fund ČSTS, Box 2, Sg. 8, Předsednictvo 1946-1948, Místní tělovýchovné rady Československého tělovýchovného svazu.

of the national committee. The national committee elected the officer from among its members for the duration of its term.[39] This officer automatically became a member of the national committee's council and was required to have sufficient expertise and experience.

The committee for physical and defense education, formed by the local or district national committee, served as an advisory body. Its members were generally specialists in physical and defense education working within the area governed by the national committee. The committee's size depended on the population: 10 members for populations up to 100,000, 12 members for larger areas, and 16 members for provincial cities. The physical education and defense officer also chaired the committee, which met as needed, typically before council meetings of the national committee.

The officer and the committee were tasked with working closely with public officials and institutions related to physical and defense education, promoting and supporting the development of physical and defense education initiatives. Their activities were divided into promotional activities and organizational and economic tasks:

1. Public care for all branches of physical and defense education, as well as the development of physical education facilities.
2. Moral and material support for physical and defense education, along with preparing budget proposals for material support by local and district national committees.
3. Maintaining records of all physical education associations and defense centers within the jurisdiction of local and district national committees.
4. Supervising all physical education and defense education facilities owned or managed by municipalities, districts, or the state.

Promotional activities included organizing and directing the promotion of physical and defense education through lectures, radio broadcasts, and printed materials in collaboration with individual physical education associations.[40]

On October 9, 1947, the ČSTS presidium approved the creation of a recreation department, which was to include two representatives from each of the ČSTS's physical education and tourist associations. Representatives from sports associations were to be added later. This department was tasked with address-

[39] However, the Slovak Physical Education Council disagreed with this arrangement, asserting that the officer should under no circumstances be a member of the National Committee. National archives in Prague, Fund ČSTS, Box 5, Sg. 12, Korespondence 1947-1948, Slovenská tělovýchovná rada, dne 30 června 1947.

[40] National archives in Prague, Fund ČSTS, Box 2, Sg. 8, Předsednictvo 1946-1948, Dodatek k předlohám pro schůzi předsednictva ČsTS, konané dne 9. října 1947 v Praze III., Tyršově domě v 18.-hod.

ing youth recreation, an area claimed by the Ministry of Social Welfare, as reported by Marie Provazníková to the ČSTS presidium.[41]

At a subsequent meeting on January 21, 1948, the ČSTS presidium appointed Marie Provazníková, one of its members, as head of the new department. However, by that time, the department had not begun its activities yet, and its first meeting was still being planned. Provazníková was also appointed to the recreation committee operating under the Provincial School Council, which oversaw the Czech region. An equivalent body for Brno was still in preparation.[42]

Activities of the Czechoslovak Physical Education Union

On November 22, 1946, physical education and sports associations received information from the MŠO that they could apply for property confiscated under the presidential decree of October 25, 1945. Initially, physical education associations, clubs, and headquarters were not included in the decree as eligible applicants because they were not public-law organizations. However, the MŠO recognized the importance of physical education for the development and defense of the state. It therefore sought to ensure that confiscated physical education facilities continued to serve their original purpose. Members of the ČSTS began submitting their requests for confiscated real estate and movable property to the association's central office. The deadline for submitting these requests was January 15, 1947. The ČSTS subsequently compiled comprehensive lists of the requested confiscated properties and was tasked with submitting them to the MŠO by January 31, 1947, which then reviewed the applications.[43]

On January 1, 1947, the ČSTS issued a declaration regarding the "Two-Year Reconstruction Plan of the Republic." The declaration stated that

> … the activities of all physical education organizations will now primarily focus on addressing the damage to the physical and moral health of our people and youth caused by the war, on establishing a new morally responsible relationship to work, and on the full development of national defense education so that all our people can grow again into a capable collective prepared to face any dangers that might threaten our freedom and democracy…[44]

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[41] National archives in Prague, Fund ČSTS, Box 2, Sg. 8, Předsednictvo 1946-1948, Zápis o schůzi předsednictva ČsTS, konané dne 9. října 1947 v Praze III., Tyršově domě.

[42] National archives in Prague, Fund ČSTS, Box 2, Sg. 8, Předsednictvo 1946-1948, Zápis o schůzi předsednictva ČsTS, konané dne 21. ledna 1948 o 18.- hod. v Praze III., Tyršově domě.

[43] National archives in Prague, Fund ČSTS, Box 4, Sg. 12, Korespondence 1946 (VII-XII), Ministerstvo školství a osvěty všem tělovýchovným a sportovním svazům, dne 22. listopadu 1946.

[44] National archives in Prague, Fund ČSTS, Box 4, Sg. 12, Korespondence 1946 (VII-XII), Československý tělovýchovný svaz k dvouletému budovatelskému plánu republiky, dne 1. ledna 1947.

The success of these efforts was to be demonstrated at upcoming major physical education events, including the Olympic Games, the XI All-Sokol Gathering, preparations for the III Orel Gathering, the IV Workers' Olympics, and various international competitions and matches.[45]

On February 25, 1947, the inaugural meeting of the ČSTS Defense Committee was held. František Leiner (Czechoslovak Orel) was elected as chairman, with L. Veverka (SDTJ) and H. Šulák (ČAAU) as vice-chairmen. During this inaugural meeting, the committee discussed issues related to national defense education[46] and the demands it sought to include in the legislation on defense education and its overall implementation. [47] Its primary task was to establish the closest possible cooperation with the MNO (Ministerstvo národní obrany – Ministry of National Defense). This was because the ČSTS aimed both to advocate for its demands[48] during the drafting of the defense education law and to secure significant representation in the organizational structure of the Defense Union. Therefore, the committee proposed to the ČSTS Presidium that delegates from the MNO, MŠO, and Defense Union be appointed as members of the ČSTS Defense Committee.[49]

At the ČSTS presidium meeting on February 25, 1947, it was agreed that the KSTL (Klub slovenských turistů a lyžařů – Slovak Tourist and Ski Club) was primarily an economically-oriented organization and, therefore, not suitable for membership in ČSTS.[50] However, KSTL expressed a desire to incorporate only some of its groups into ČSTS, specifically those with a stronger focus on physical education. Simultaneously, discussions continued in Czechoslovakia about establishing a unified tourism organization that would later be integrated into ČSTS.[51]

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[45] Ibidem.

[46] National defense education played a relatively minor role in Czechoslovakia until the end of the Protectorate of Bohemia and Moravia. Nevertheless, in 1937, a law on national defense education was successfully enacted, although it was repealed two years later. A new law on national defense education began to be drafted after the liberation of Czechoslovakia but did not come into effect until 1951.

[47] National archives in Prague, Fund ČSTS, Box 2, Sg. 8, Předsednictvo 1946-1948, Zápis o poradě předsednictva ČSTS, dne 25. 2. 1947 v Praze.

[48] Key discussions focused on the number of mandatory hours of national defense education per year, valid reasons for exemption from participation—such as attending physical education courses or preparing for physical education events—the methods of appointing and selecting instructors for national defense education, and the procedure for nominating the commander of a training center.

[49] National archives in Prague, Fund ČSTS, Box 2, Sg. 7, Výbor 1946-1947, ČESKOSLOVENSKÝ TĚLOVÝCHOVNÝ SVAZ, Branný odbor.

[50] National archives in Prague, Fund ČSTS, Box 2, Sg. 8, Předsednictvo 1946-1948, Čsl. tělovýchovný svaz, Praha III., Tyršův dům, Předlohy pro schůzi předsednictva ČSTS, dne 25. 2. 1947 v 18. hod v Tyršově domě v Praze.

[51] National archives in Prague, Fund ČSTS, Box 2, Sg. 8, Předsednictvo 1946-1948, Zápis s schůzi předsednictva ČSTS, dne 1. dubna. 1947 v Praze.

ČSTS also addressed the issue of union-based physical education. For the time being, member associations were advised not to enter into agreements with trade unions, as ČSTS aimed to address the matter as a whole. It argued that union-based physical education was not a sports federation and could not be placed on the same level as organized physical education. Therefore, it was proposed to request that the MŠO convene a consultation between representatives of ČSTS and the ÚRO.[52]

From March 1947, consultations between ČSTS and ÚRO regarding shared issues in physical education began under the organization of MŠO, where physical education was managed in Sector C. Union organizations primarily focused on their members' "corrective gymnastics" and recreation. Typically, they lacked sufficient capable individuals with appropriate expertise to expand their activities beyond this framework. Thus, if unions sought to extend their activities, sports officials at the time believed they needed to negotiate agreements with ČSTS through contracts with individual sports associations.[53]

To address the situation and conclude an agreement, a commission was established, consisting of three members from each side.[54] Over time, however, trade unions increasingly began organizing physical education independently, which ČSTS opposed. The primary reason was that this enabled participation by players and officials who had been permanently disqualified by member associations and excluded from the ranks of athletes. Additionally, ČSTS objected to certain players competing for factory clubs receiving, in its view, excessive benefits. ČSTS also protested that basic medical care was not adequately ensured at these competitions.[55]

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[52] National archives in Prague, Fund ČSTS, Box 2, Sg. 8, Předsednictvo 1946-1948, Předlohy pro schůzi předsednictva ČSTS dne 21. ledna 1947 v Praze.

[53] In the factory clubs, football was particularly popular, and members of these clubs generally wanted to compete in organized competitions. However, they lacked an agreement with the sports federation that would allow them to participate in such events. Even if these clubs intended to compete solely in "union competitions," reaching an agreement with ČSTS would likely be still necessary, as the current regulations prohibited clubs from lending their fields for such purposes. Additionally, they would likely face challenges in securing referees and ensuring the participation of registered players, who, under ČSTS rules, were not permitted to compete in factory competitions as these did not qualify as recreation.

[54] Union organizations operated outside the ČSTS framework because they were not considered sports clubs but merely factory organizations. National archives in Prague, Fund ČSTS, Box 2, Sg. 11, Porady 1947-1948, Porada zástupců Československého tělovýchovného svazu a Ústřední rady odborů o společných otázkách tělesné výchovy v ministerstvu školství a osvěty, sektor C, Praha III., Budečská 6, dne 12.3.1947. National archives in Prague, Fund ČSTS, Box 2, Sg. 11, Porady 1947-1948, Druhá porada zástupců Československého tělovýchovného svazu a Ústřední rady odborů o společných otázkách tělesné výchovy v ministerstvu školství a osvěty, sektor C, Praha III., Budečská 6, dne 19.3.1947.

[55] National archives in Prague, Fund ČSTS, Box 10, Sg. 20, Protesty 1947, ČsTS Ministerstvu školství a osvěty, dne 13. října 1947.

In May 1947, the ČSTS leadership praised the smooth cooperation and mutual agreements among all members of the organization during a board meeting. However, it was noted that the sole dark spot was the ČOV. The issue stemmed from the coexistence of ČOV and the Slovak Olympic Committee,[56] which also had officially approved statutes and its own agenda. Thus, it could not be said that ČOV was the sole apex organization managing Olympic affairs in the country at that time.

A call was made to create a unified organization. The main problem was that some Slovak representatives did not recognize ČOV and asserted that only the Slovak Olympic Committee was a member of the IOC. They intended to issue a statement through the Slovak Physical Education Council.[57]

In 1947, the ČSTS also discussed the possibility of establishing a so-called **"***Victory Badge***"** to

> …stimulate the performance of individuals and teams in the field of physical education and to further promote the name of ČSTS… The badge would be awarded annually to winning individuals, teams, or associations for achievements made during the preceding year, either during the ČSTS Congress or at a ceremonial meeting of the Central Committee.[58]

The badge was to be divided into three categories: gold, silver, and bronze. Individuals, teams, and associations could compete for the gold badge, while only individuals and associations were eligible for the silver and bronze badges. However, the creation of the *"Victory Badge"* faced resistance from the MŠO, which was, at the time, preparing its own *"Badge of Fitness."* Concerns arose that the *"Victory Badge"* might interfere with the MŠO initiative. The ČSTS Sports Commission, however, believed the two badges were of a different nature and recommended continuing with the ČSTS proposal.[59]

The ČSTS communicated its activities and developments in Czechoslovak physical education, sports, tourism, and scouting through its weekly magazine, *Ruch v tělesné výchově* (*Movement in Physical Education*). The publishing was handled by the *Práce* publishing house.[60]

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[56] The Slovak Olympic Committee was established as a result of the formation of the independent Slovak State and was subsequently accepted as a member of the IOC.

[57] National archives in Prague, Fund ČSTS, Box 2, Sg. 7, Výbor 1946-1947, Zápis o schůzi výboru Československého tělovýchovného svazu, konané v sobotu dne 3. května ve 14,30.

[58] National archives in Prague, Fund ČSTS, Box 14, Sg. 26, Schůze techn. odboru mužů 1947, Návrh na založení pamětního Odznaku vítězství.

[59] National archives in Prague, Fund ČSTS, Box 14, Sg. 26, Schůze techn. odboru mužů 1947, Zápis o poradě sportovní komise technického odboru mužů, konané dne 7. října 1947 o 18.-hod. v Praze III. Tyršově domě.

[60] The first issue of this periodical was published on October 20, 1945, even before the establishment of the ČSTS. At that time, it was still a pictorial magazine of the ÚNTV. On November 18, 1946, the Ministry of Information authorized its transfer to the ČSTS through an official decree.

As of December 16, 1947, the assets of the ČSTS included cash holdings totaling 463,472.5 Kčs (Koruna československá – Czechoslovak crown) and inventory valued at 62,729.5 Kčs. The ČSTS's income for 1947 came from various sources (see Table 2).[61]

Table 2. Income vs. Expenses of ČSTS for the Year 1947

Income		**Expenditures**	
Donations	100,000 Kčs	Administrative costs	447 572,90 Kčs
Membership Fees	346,201.80 Kčs		
Revenue from the "*Ruch*" Magazine	146,526.80 Kčs		
Sales of Forms	76,778.80 Kčs		
Miscellaneous Income/Interest	118.60 Kčs		
Total	**669,626.0 Kčs**		

Source: National archives in Prague, Fund ČSTS, Box 2, Sg. 9, Presidiální rada 1947, Zápis o schůzi presidiální rady ČsTS, konané dne 18. 12. 1947 v Bratislavě.

In 1948, a number of trips for member federations to foreign competitions were approved by ČSTS. Among them were the athletes' trip to Austria and the canoeists' trip to Sweden. In contrast, football and basketball teams from Hungary were expected to visit Czechoslovakia.[62] However, the organization of these events, from the perspective of individual federations, clubs, or the entire ČSTS, ceased to exist after February 1948.

From February 17–25, 1948, Czechoslovakia experienced a communist coup. The subsequent events in Czechoslovak physical education gained rapid momentum. The communists were suddenly able to implement major changes and interventions in the organization of Czechoslovak physical culture with little resistance. On February 27, 1948, the Presidium of the so-called Central Action Committee of the National Front (Ústřední akční výbor Národní fronty) decided that the only physical education organization would be Sokol, into which other physical education, sports, and tourist organizations, federations, associations, and clubs would merge, along with their assets and membership.[63]

Řanda T., Jak se změnila sportovní žurnalistika v československém tisku po roce 1948? Srovnání období let 1945-1948 a 1953-1958 (Master's thesis), Charles University, Prague 2017, p. 63.

[61] Therefore, ČSTS managed a surplus of 222,053.10 Kčs for the year 1947.

[62] National archives in Prague, Fund ČSTS, Box 13, Sg. 25, Mezinárodní odbor 1947-1948, Ministerstvo školství a osvěty, prostřednictvím Československého tělovýchovného svazu, Praha dovoluje si požádati o povolení uspořádati zájezd do ciziny. National archives in Prague, Fund ČSTS, Box 13, Sg. 25, Mezinárodní odbor 1947-1948, Ministerstvo školství a osvěty, prostřednictvím Československého tělovýchovného svazu, Praha dovoluje si požádati o povolení uspořádati mezinárodní utkání v Československu.

[63] Kössl J., Štumbauer J., Waic M., Vybrané kapitoly z dějin tělesné kultury, Karolinum, Prague 2006, p. 142.

For this purpose, an action committee of the ČOS was created, which supported the policy of Klement Gottwald and called for the establishment of action committees in Sokol districts and units. In Slovakia, an action committee of the Slovak Physical Education Council was established, which, on March 2, 1948, was transformed into an action committee of the unified Sokol physical education organization. The action committees then worked on the unification, which was declared on March 31, 1948.[64] This marked the definitive end of the need for ČSTS in Czechoslovakia.

Conclusion

After the liberation of Czechoslovakia in May 1945, the unification of Czechoslovak physical education, sports, and tourism became a priority, attracting significant attention from political parties and figures. In particular, the Communist Party of Czechoslovakia began to promote the necessity of unification, driven both by its ambition to seize full control over the country and by the fact that its closely affiliated organization—the Federation of Proletarian Physical Education—had played only a minor role in pre-war Czechoslovakia. Moreover, the Federation of Proletarian Physical Education had failed to accumulate any substantial property up to that point. Through organic unification, it could easily gain access to the assets of other organizations.[65]

The first attempt at the organic unification of Czechoslovak physical education was made by the ÚNTV. However, its goal was not fulfilled, and for this rea-

[64] The opinions of individual sports federations or organizations regarding the forced unification of Czechoslovak physical education, sport, and tourism into a single organization varied. For example, the Czechoslovak Orel, which had always opposed organic unification with other associations, was initially only prohibited from activity, but its de facto dissolution did not occur. Its membership thus adopted a wait-and-see approach (attempting to avoid unnecessary provocative actions) and hoped for an improvement in the situation. In contrast, on March 26, 1948, the Czechoslovak Tourist Community called on all its local branches, groups, and representatives to immediately begin negotiations with the relevant Sokol units and actively participate in them. It emphasized that it welcomed the inclusion of all physical education, sport, and tourism into Sokol, as it fulfilled its long-standing decision – the unification of all Czechoslovak physical education, sport, and tourism into the ÚNTV. The unification was also praised by, for example, the Czechoslovak Amateur Swimming Union, which presented itself by attempting to engage as intensely as possible in the planned unification, as well as the Czechoslovak Ski Federation. Vejvar S., Dějiny tělovýchovné organizace Orel v Čechách v letech 1909–1948 (Dissertation thesis), Charles University, Prague 2014, pp. 392–393. National archives in Prague, Fund ČSTS, Box 6, Sg. not specified, Čs. obec turistická 1948, ČESKOSLOVENSKÁ OBEC TURISTICKÁ všem místním odborům, skupinám a jednatelským místům, dne 26. března 1948. "Plavectví" 1948, no. 4, p 1. Oběžník č. 23*,* Svaz lyžařů republiky Československé, Prague 1948.

[65] Štumbauer J., Historie tělesné výchovy a sportu v Československu v letech 1945–1956. Od omezené demokracie k tuhému stalinismu, "Česká Kinantropologie" 2019, vol. 23, no. 1–2, pp. 43–61.

son, the ČSTS was established in November 1946, aiming to unify Czechoslovak physical education, sports, and tourism on a federative basis.

This organization, led by Antonín Hřebík, was more successful in its efforts. Its founding charter was signed by 37 organizations representing a total of around two million members. The only notable organization that refused to join ČSTS for a long time was the Czech Junák, as it did not consider itself a physical education organization. The mission of ČSTS was to oversee all physical education, sports, and tourism activities, as well as all related matters.

Each type of sport was represented in this national organization by only one central governing body. Slovak members of the ČSTS executive committee were also members of the Slovak Physical Education Council, through which ČSTS operated in Slovakia. Cooperation among ČSTS members was generally smooth, with one exception being the ČOV, which coexisted with the Slovak Olympic Committee. Some members of the latter claimed that only their organization was the legitimate member of the IOC.

For better organization, the ČSTS established committees responsible for various aspects of its activities. In addition to committees, ČSTS created departments to handle the tasks arising from its operations. To improve the care of physical education, new positions were later introduced at the local and district levels of national committees. These included the roles of Physical and Military Education Officers and the Committees for Physical and Military Education. Their purpose was to assist in expanding and deepening physical and military education within their respective jurisdictions. Additionally, lower-level bodies were formed within ČSTS to oversee physical education, sports, and tourism. These bodies were designed so that representatives of Sokol, Czechoslovak Orel, Junák, and sports and tourism clubs in each town would form a local physical education council under the ČSTS. These councils followed the guidelines of ČSTS and acted as advisory bodies for local clubs and organizations, but they were not permitted to interfere with their activities.

The ČSTS communicated its activities and developments in Czechoslovak physical education, sports, tourism, and scouting through its magazine titled *Ruch v tělesné výchově*. This magazine eventually became one of the main sources of financial income for ČSTS, alongside membership fees and various donations.

ČSTS operated in this manner until February 1948, when a communist coup took place in Czechoslovakia. Following the coup, it was decreed that Sokol would become the sole physical education organization in the country, absorbing all other physical education, sports, tourism, and scouting organizations, along with their memberships and assets.

DECLARATION OF CONFLICTING INTERESTS

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AUTHORS' CONTRIBUTIONS

Tomáš Tlustý: Conceptualization; Methodology; Investigation; Writing - Original Draft; Writing - Review and Editing.

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POLISH ACHIEVEMENTS IN COMBAT SPORTS AT THE MODERN OLYMPIC GAMES AND THEIR POSITION COMPARED TO OTHER COUNTRIES IN CENTRAL AND EASTERN EUROPE

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Polskie osiągnięcia w sportach walki na nowożytnych igrzyskach olimpijskich i ich pozycja na tle innych krajów Europy Środkowo-Wschodniej

Streszczenie

Celem artykułu jest popularyzacja wiedzy na temat osiągnięć Polaków w sportach walki: boksie, szermierce, judo, karate, pięcioboju nowoczesnym, taekwondo i zapasach na nowożytnych igrzyskach olimpijskich. Posłużono się oficjalnymi danymi Międzynarodowego Komitetu Olimpijskiego. Porównano znaczące osiągnięcia Polski w sportach walki z osiągnięciami pozostałych państw Europy Środkowo-Wschodniej. Do analiz przyjęto łączną liczbę punktów medalowych zdobytych przez reprezentantów poszczególnych krajów dla współczynnika przeliczeniowego (5 punktów – złoty medal, 3 punkty – srebrny medal, 1 punkt – brązowy medal). Ponadto uwzględniono zmiany geopolityczne w całym analizowanym okresie. Medale zdobyte przez sportowców z ZSRR, Jugosławii, Czechosłowacji lub Wspólnoty Niepodległych Państw zostały przypisane do poszczególnych krajów w odniesieniu do narodowości danego sportowca. Wyniki przedstawiono w formie map i tabel. Spośród analizowanych olimpijskich sportów walki Polacy odnosili największe sukcesy w boksie, szermierce i pięcioboju nowoczesnym, a spośród dalekowschodnich sportów walki tylko

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w judo. Analiza porównawcza z innymi krajami Europy Środkowo-Wschodniej wykazała, że kraje te mają największe osiągnięcia w zapasach, boksie i judo, a najmniejsze w karate i taekwondo.

Słowa kluczowe: geografia sportu, Europa Środkowa, Europa Wschodnia, Igrzyska Olimpijskie, sporty walki.

Abstract

The aim of this article is to provide information on the achievements of Poles in combat sports: boxing, fencing, judo, karate, modern pentathlon, taekwondo, and wrestling at the modern Olympic Games. Official data from the International Olympic Committee was used. Poland's significant achievements in combat sports were compared with those of other Central and Eastern European countries. The analysis was based on the total number of medal points won by representatives of individual countries for the conversion coefficient (5 points – gold medal, 3 points – silver medal, 1 point – bronze medal). In addition, geopolitical changes throughout the analysed period were taken into account. Medals won by athletes from the USSR, Yugoslavia, Czechoslovakia, or the Commonwealth of Independent States were assigned to individual countries according to the nationality of the athlete. The results are presented in the form of maps and tables. Among the Olympic combat sports analysed, Poles were most successful in boxing, fencing, and modern pentathlon, and among Far Eastern combat sports, only in judo A comparative analysis with other Central and Eastern European countries showed that these countries have the greatest achievements in wrestling, boxing, and judo, and the least in karate and taekwondo.

Keywords: Central Europe, combat sports, Eastern Europe, geography of sport, Olympic Games.

Introduction

Combat sports in Central and Eastern Europe are an important part of culture and society. They reflect both European traditions and contemporary trends in Asian martial arts. Various disciplines are popular both as forms of physical activity and methods of self-defense. Their popularity in the region stems from the rich history of combat sports, as well as their role in education through sport.[1]

Poland has made considerable contributions to combat sports, as evidenced by its numerous medals at the Olympic Games. In light of this, it is fitting to recall these achievements as we mark the centenary of Poland's participation in the modern Olympic Games (1924-2024).[2] This article represents a continuation of the authors' research into the geography of Olympic combat sports at the mod-

[1] W. J. Cynarski, L. Sieber, K. Obodyński, M. Ďuriček, P. Król, M. Rzepko, *Factors of Development of Far Eastern Martial Arts in Central Europe*, "Journal of Human Kinetics" 2009, vol. 22, pp. 69-75.

[2] H. Reid, *Olympic Philosophy: The Ideas and Ideals behind the Ancient and Modern Olympic Games*, Sioux City 2020.

ern Olympic Games, as previously outlined.[3] Combat sports are sports that emulate combat techniques,[4] and they were already present in the ancient Olympic Games (wrestling and boxing).[5] The field of sports geography is a scientific discipline that examines the geographical distribution of elements within the domain of sport, as well as the impact of geography on the development and practice of sports.[6] It is situated at the intersection of geography (from the discipline of earth and environmental sciences) and sport (from the discipline of physical culture sciences).[7] In contrast to the history of combat sports and the Olympic movement, research on combat sports geography is rarely undertaken in the literature,[8] hence the need for further investigation in this area.

The contemporary combat sports that are performed at the Olympic Games include boxing, fencing, judo, karate, modern pentathlon (due to the fact that one of the disciplines of the pentathlon is fencing and the entire competition refers to defensive skills, which are a utilitarian value of combat sports and are consistent with the principles of combat sports theory[9]), taekwondo and wrestling.[10] The aim of this article is to analyse the achievements of Polish combat sports athletes to date and compare them with those of the other 19 Central and Eastern European countries. This will enable us to identify differences and similarities between the countries in our geographical region. The countries of Central and Eastern Europe include Albania, Belarus, Bosnia and Herzegovina,

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[3] J. Bagińska, P. Piepiora, Z. Piepiora, K. Witkowski, *The geography of Olympic combat sports – part one: judo, karate, taekwondo*, "Archives of Budo" 2022, vol. 18, pp. 169-178; J. Bagińska, P. Piepiora, Z. Piepiora, K. Witkowski, *The geography of Olympic combat sports – part two: boxing, fencing, modern pentathlon, wrestling*, "Archives of Budo" 2022, vol. 18, pp. 327-340.

[4] X. Xu, Y. Sun, D. Zhu, *Analysis of the impact force and key technique of backward straight punch in different combat sports*, "Scientific Reports" 2025, vol. 15, pp. 10958.

[5] T. C. B. Telles, R. P. T. Machado, *Wrestling, boxing and pankration: introducing the 'heavy events' in Ancient Olympic Games*, "Olimpianos – Journal of Olympic Studies" 2022, vol. 6, pp. 251-267.

[6] L.M. DeChano-Cook, L.F. Hallett, *Challenges of teaching sports geography in higher education*, "Journal of Geography in Higher Education" 2023, vol. 48, no. 1, pp. 46–53; J. Bagińska, P. Z. Piepiora, P. A. Piepiora, *Geography of Olympic Combat Sports. Part three: dominance*, "Ido Movement for Culture Journal of Martial Arts Anthropology" 2025, vol. 25, no. 1, pp. 1-7.

[7] N. Kvirkvelia, *Modern Approaches and Their Importance in the Teaching-Learning Process of Geography*, "Georgian Geographical Journal" 2023, vol. 3, no. 2.

[8] A. Pawłucki, *Pedagogia olimpijska Homo physicus*, Kraków 2022; V. Menderetskyi, U. Nedilska, *Historical aspects of modern scientific problems of geography*, "Collection of scientific papers Kamianets. Podilsky Ivan Ohienko National University Pedagogical series" 2025, vol. 30, no. 30, pp. 16-20.

[9] R. M. Kalina, *Teoria sportów walki*, Warszawa 2000.

[10] J. Cvejić, N. Mihajlović, M. Durlević, *Influence of media on the popularization of combat sports*, "SPORTICOPEDIA – SMB" 2024, vol. 2, no. 1, pp. 195-204; L. Toskić, *Editorial: Combat sports in contemporary society: an interdisciplinary exploration*, "Frontiers in Sports and Active Living" 2025, vol. 7, pp. 1568909.

Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Kosovo, Latvia, Lithuania, Moldova, Montenegro, North Macedonia, Poland, Romania, Serbia, Slovakia, Slovenia, and Ukraine.[11] This is a geographically expansive region with a complex history, diverse cultural and political pasts, and a varied population size and nationality. Despite these differences, the countries in this region share a common geographical proximity and a strong historical and cultural connection. Figure 1 illustrates the compact spatial distribution of these countries within Europe.

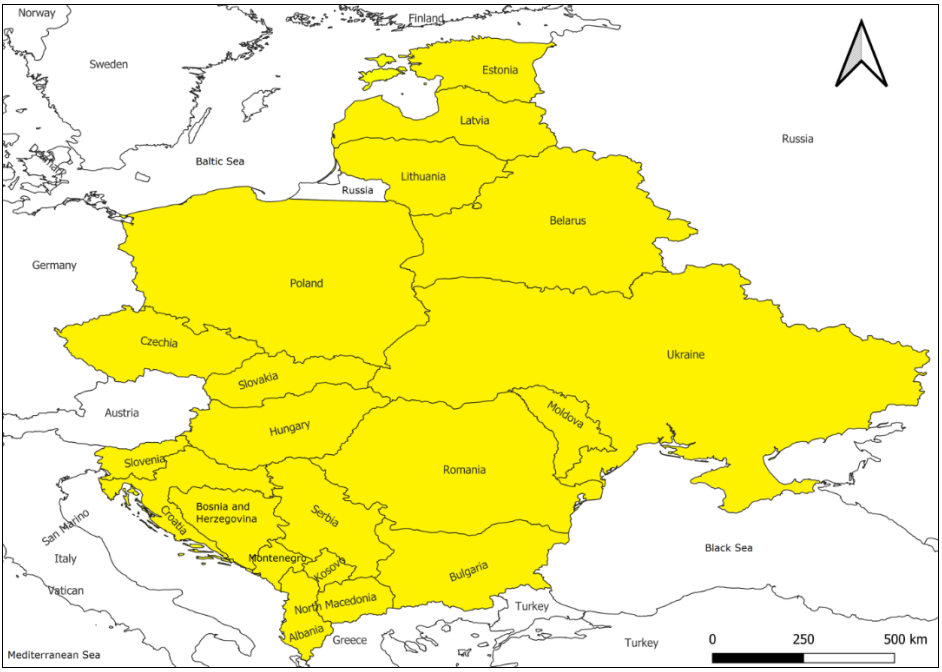

Fig. 1. Central and Eastern Europe countries
Source: own work based on [https://www.naturalearthdata.com]

Material and methods and research problems

The 2024 Olympic Games in Paris yielded 29 new medals for Central and Eastern European countries across the disciplines analysed, including two for Poland (team bronze in fencing and silver in boxing). This illustrates the popularity of these sports in our region.[12]

[11] T. Stępniewski, *Zrozumieć Europę Środkową od Haleckiego do Kłoczowskiego*, Lublin 2022.

[12] International Olympic Committee, *Olympic results*, 2024. https://olympics.com/en/paris-2024/medals [accessed: 08 Sept 2024].

The data analysed was sourced from the International Olympic Committee.[13] The analysis encompasses the period from the inaugural modern Olympic Games in Athens in 1896 to the most recent edition in Paris in 2024. This time frame allows for the inclusion of individual combat sports, which were included in the Olympic disciplines at different times. Fencing and wrestling in the Greco-Roman style have been included in the Olympic programme since the inaugural modern Games in Athens in 1896. In 1900, Greco-Roman wrestling was removed from the Olympic program in Paris, but Greco-Roman and freestyle wrestling returned permanently to the Olympic program in 1904 in St. Louis. Boxing, on the other hand, was introduced at the 1904 Olympic Games in St. Louis, but this sport did not appear at the 1912 Olympics in Stockholm. In contrast, modern pentathlon has been part of the Olympic programme since the 1912 Games in Stockholm. Subsequently, in 1964, judo was introduced to the programme at the Olympic Games in Tokyo. In contrast, taekwondo made its inaugural appearance at the Sydney Olympic Games in 2000.[14] The youngest Olympic combat sport is karate, which was introduced to the Tokyo Olympic Games programme in 2020. However, the Tokyo Olympics were held in 2021 due to the pandemic, and karate was removed from the program of the next Olympic Games in Paris.[15] The gradual integration of the aforementioned combat sports into the Olympic programme was driven by their growing popularity, global prevalence, and, most crucially, their alignment with the criteria set forth by the IOC.[16] Combat sports, present since the ancient Olympic Games, play a significant role in shaping national identity, especially in the modern context. Their presence in the Olympic program since ancient times, and subsequently in the modern Games, highlights their universal character and cultural significance. In regions where fighting traditions are deeply rooted, these sports have become a vehicle for national values, symbolizing strength, courage, and fighting spirit.[17]

The total medal points accrued by the representatives of each country were employed in the analyses, with the conversion factor of 5 points for gold,

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[13] International Olympic Committee, *Olympic results*, 2022. https://olympics.com/en/olympic-games/olympic-results [accessed: 25 Sept 2022].

[14] G. Apollaro, B. Ruscello, *Exploring the age of taekwondo athletes in the Olympic Games: an analysis from Sydney 2000 to Rio 2016*, "The Journal of sports medicine and physical fitness" 2022, vol. 62, no. 6, pp. 838-845.

[15] P. A. Piepiora, J. Vveinhardt, *Modern classification of types of karate competitors in kumite according to semi contact and full contact rules*, "Archives of Budo Journal of Innovative Agonology" 2025, vol. 21, pp. 47-57.

[16] Z. Ma, *Looking Forward to The Future Olympic Games*, "2025 International Conference on Biomaterials, Computer Engineering and Ecological Environment (IBCEE 2025)" 2025, vol. 13, no. 1, pp. 1384-1392.

[17] A. Pawłucki, *Olympic Opera*, "Ido Movement for Culture Journal of Martial Arts Anthropology" 2023, vol. 23, no. 4, pp. 56–67.

3 points for silver and 1 point for bronze medals being utilised. As the current political division of the countries of Central and Eastern Europe does not correspond to the political division throughout the period under analysis, due to geopolitical changes, medals won by athletes from the USSR, Yugoslavia, Czechoslovakia or the Commonwealth of Independent States were categorised into individual countries, taking into account the nationality of the athlete concerned. This is why, in some cases, fractional values can be observed in the tables. For instance, when the bronze medal in fencing was won by the five-member USSR team (Munich 1972 Olympic Games), with one athlete of Ukrainian nationality, Ukraine was allocated one-fifth of the medal points (0.2 points). This breakdown shows how geopolitical changes in Eastern Europe had a profound impact on the representation of individual countries in sport. Newly formed states had to build their own sporting identities, and international competition underwent significant changes. On the other hand, it emphasized the role of combat sports in the culture of newly established countries, their influence on the development of local sporting traditions and societies in which these disciplines play a significant role.[18]

The results of the study are presented in the form of proportional symbol maps and in tabular form, utilizing the QGIS 3.28 GIS software. The 'Cultural' cartographic base map at a scale of 1:10 000 000 available in the public domain was used to generate the figures 1-8.[19]

Results

Boxing

Boxing, along with wrestling and judo, is one of the most popular combat sports in our region, with competitors from as many as 15 countries having won medals in boxing (Fig. 2, Tab. 1). The most successful athletes in this region are from Poland (ranked first in the region and seventh in the world) and Hungary (ranked ninth in the world). At the Paris Games, Central and Eastern European countries secured three new medals: gold for Ukraine, silver for Poland, and bronze for Bulgaria.

[18] A. Zoranic, *Modernism in the Case of Sports Architecture in Yugoslavia*, "IOP Conference Series: Materials Science and Engineering" 2020, vol. 960, pp. 022074.

[19] Natural Earth, *Free vector and raster map data*, 2022. https://www.naturalearthdata.com/ [accessed: 09 Nov 2022].

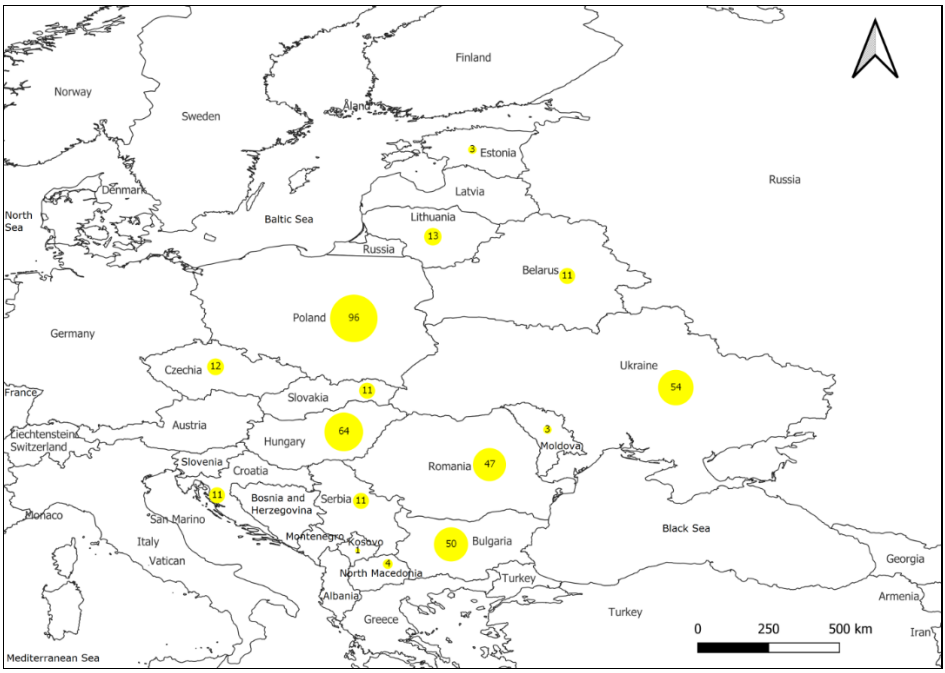

Fig. 2. Medal points in boxing
Source: own work based on [https://www.naturalearthdata.com]

Tab. 1. Country's position in the world ranking and total medal points in boxing

No.	World ranking	Country	Total medal points
1	7	Poland	96
2	10	Hungary	64
3	12	Ukraine	54
4	15	Bulgaria	50
5	16	Romania	47
6	36	Lithuania	13
7	42	Czech Republic	12
8	43	Serbia	11
9	44	Belarus	11
10	45	Croatia	11
11	46	Slovakia	11
12	59	North Macedonia	4
13	63	Moldova	3
14	65	Estonia	3
15	73	Kosovo	1

Source: own study

Fencing

Fencing, like modern pentathlon, is a discipline in which the countries of our region have achieved notable success on the global stage, with their achievements deriving from the European fencing tradition. Eight countries in our region have been awarded medals in fencing (Fig. 3, Tab. 2). Similarly, Hungary is the leading nation in this field, ranking third globally, while Poland and Romania have attained notable positions in the global rankings, ranking seventh and ninth, respectively. Furthermore, the spatial concentration of medal-winning countries is evident in fencing (Fig. 3). During the Paris Games, countries in our region secured seven additional medals, thereby consolidating their position. Hungary won one gold, one silver, and one bronze medal, Ukraine won one gold and one bronze, and the Czech Republic and Poland each won one bronze.

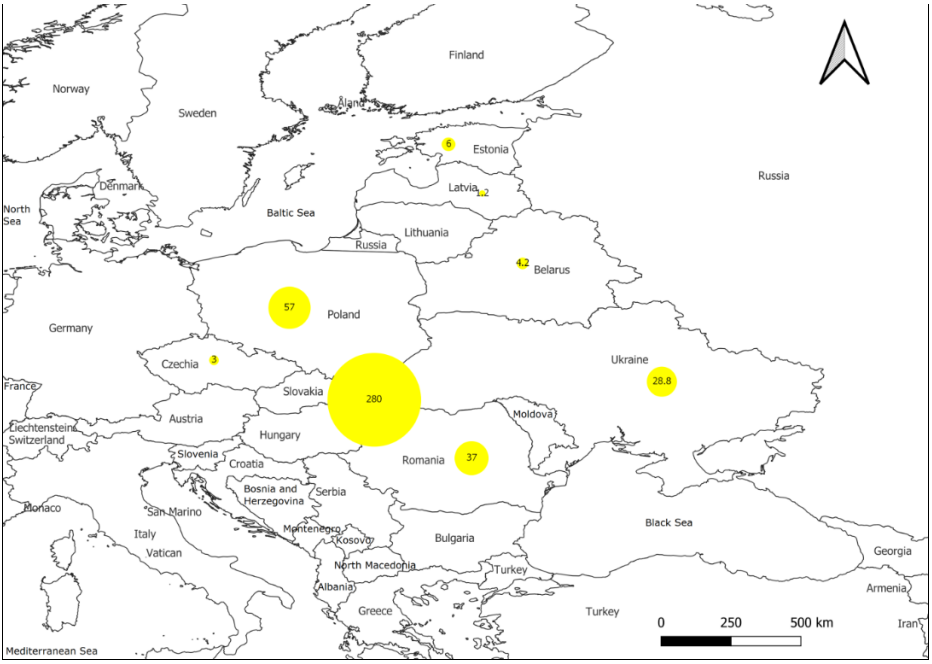

Fig. 3. Medal points in fencing
Source: own work based on [https://www.naturalearthdata.com]

Tab. 2. Country's position in the world ranking and total medal points in fencing

No.	World ranking	Country	Total medal points
1	3	Hungary	280
2	7	Poland	57
3	9	Romania	37
4	13	Ukraine	28.8

Tab. 2. Country's position in the world ranking and total medal points in fencing (cont.)

No.	World ranking	Country	Total medal points
5	22	Estonia	6
6	24	Belarus	4.2
7	26	Czech Republic	3
8	29	Latvia	1.2

Source: own study

Judo

Judo is a popular combat sport in our region, as evidenced by its performance at the Olympic Games (Fig. 4, Tab. 3). A total of fifteen countries in the region have been awarded Olympic medals in judo. In 2024, Moldova became the latest member of this group to win Olympic medals, claiming two bronze medals for the first time in its history. In total, at the Paris Games, representatives of the aforementioned group of countries won six new medals, including one gold (awarded to Croatia), one silver (awarded to Slovenia), and three bronze (awarded to Kosovo and Moldova). Furthermore, the Polish competitors achieved the most successful results in this sport in Central and Eastern Europe, ranking 16th in the world. Other countries that have achieved notable success in judo, ranking within the top 20 in the world, include Slovenia, Hungary and Kosovo.

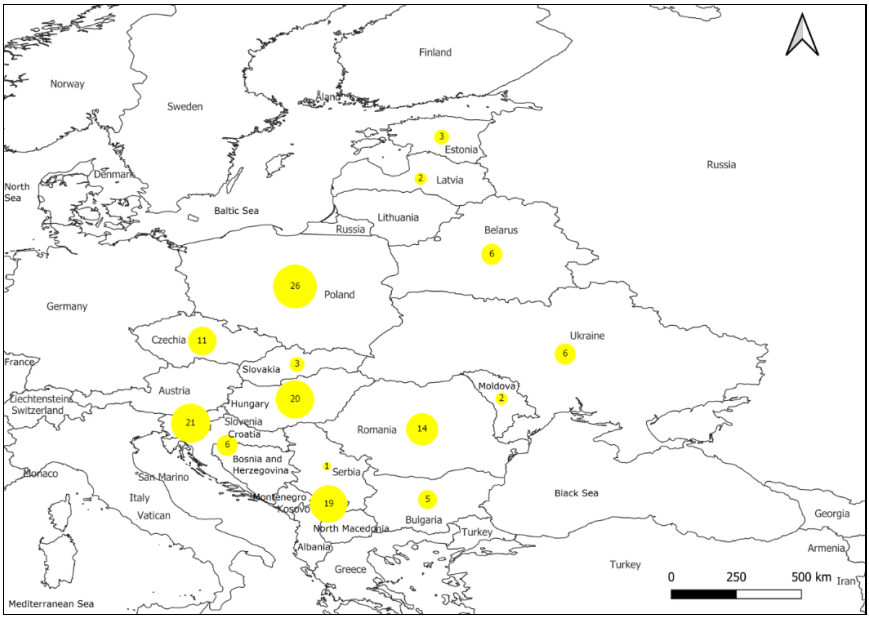

Fig. 4. Medal points in judo
Source: own work based on [https://www.naturalearthdata.com]

Table 3. Country's position in the world ranking and total medal points in judo

No.	World ranking	Country	Total medal points
1	16	Poland	26
2	20	Slovenia	21
3	21	Hungary	20
4	23	Kosovo	19
5	27	Romania	14
6	29	Czech Republic	11
7	32	Ukraine	6
8	34	Belarus	6
9	36	Croatia	6
10	37	Bulgaria	5
11	42	Estonia	3
12	44	Slovakia	3
13	47	Latvia	2
14	49	Moldova	2
15	52	Serbia	1

Source: own study

Karate

Karate, the youngest discipline of Olympic combat sports, has only been played once at the Tokyo Games and is not included in the 2024 Games programme. Nevertheless, representatives from four central and eastern European countries (Fig. 5, Tab. 4) have managed to win medals in the discipline, with Bulgaria and Serbia both ranking in the world top 10. There have been no Polish Olympic medallists in this discipline to date.

Modern pentathlon

Modern pentathlon is a complex discipline that requires all-round skills, including fencing, horse riding, shooting, running and swimming. Countries in Central and Eastern Europe have historically demonstrated a high level of success in this sport, with eight nations from the region having achieved Olympic victories. The country with the highest number of victories is Hungary, with Poland, Lithuania and the Czech Republic also featuring in the top ten (Fig. 6, Tab. 5). It is notable that these countries are geographically concentrated (Fig. 6). During the competition in Paris, Hungary won one gold medal, thereby reinforcing its leading position.

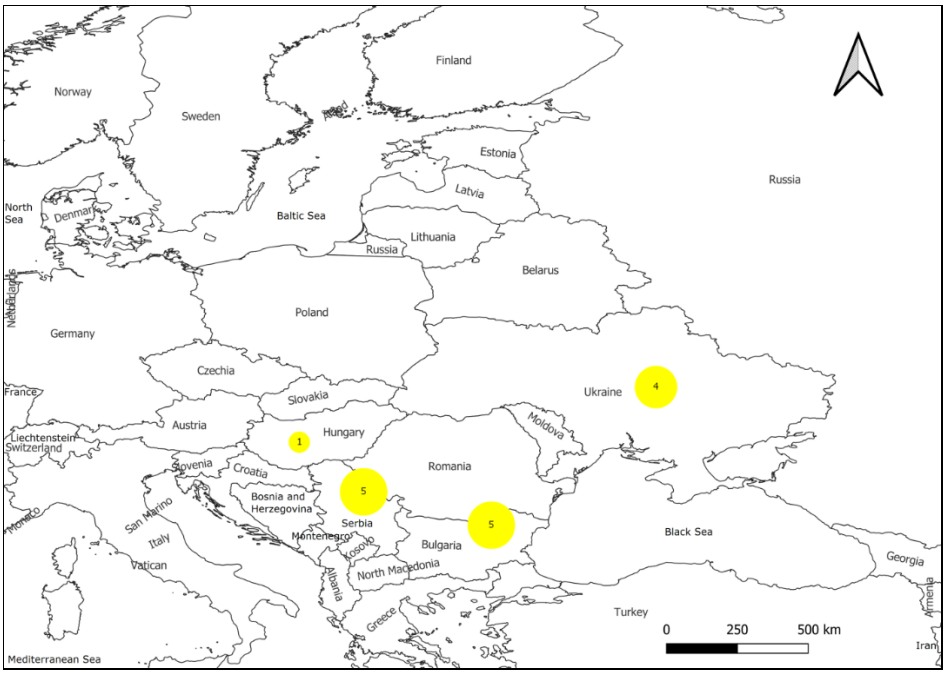

Fig. 5. Medal points in karate
Source: own work based on [https://www.naturalearthdata.com]

Table 4. Country's position in the world ranking and total medal points in karate

No.	World ranking	Country	Total medal points
1	9	Bulgaria	5
2	10	Serbia	5
3	12	Ukraine	4
4	15	Hungary	1

Source: own study

Taekwondo

Despite the lack of popularity of taekwondo as a combat sport in our region, as evidenced by the outcomes of Olympic competitions, the most recent Olympic event in Paris has prompted a shift in this trend. Prior to the Tokyo Games, only three countries in our region, namely Serbia, Croatia and North Macedonia, had been represented in the medal tally. However, at the Paris Games, two additional countries were included in this group. It can be concluded that the popularity of this combat sport is growing in our region, as evidenced by the victories of Hungary (1 gold medal) and Bulgaria (1 bronze medal) (Fig. 7, Tab. 6). In Paris, countries from our group won a total of four new medals. In addition to

the previously mentioned Hungary and Bulgaria, representatives of Serbia and Croatia returned with medals (one silver and one bronze medal). It is noteworthy that Serbia and Croatia are also in the top 20 countries in the world. On the global stage, the discipline is dominated by its country of origin, South Korea. Like with karate, the Poles have yet to achieve Olympic success in taekwondo.

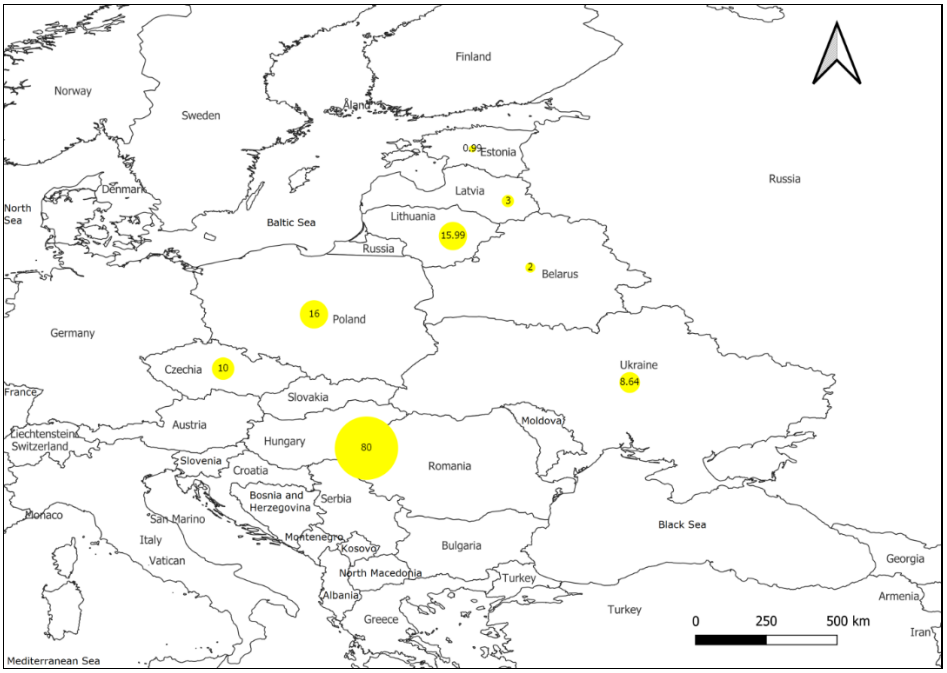

Fig. 6. Medal points in modern pentathlon
Source: own work based on [https://www.naturalearthdata.com]

Tab. 5. Country's position in the world ranking and total medal points in modern pentathlon

No.	World ranking	Country	Total medal points
1	1	Hungary	80
2	7	Poland	16
3	8	Lithuania	15.99
4	10	Czech Republic	10
5	11	Ukraine	8.64
6	18	Latvia	3
7	20	Belarus	2
8	25	Estonia	0.99

Source: own study

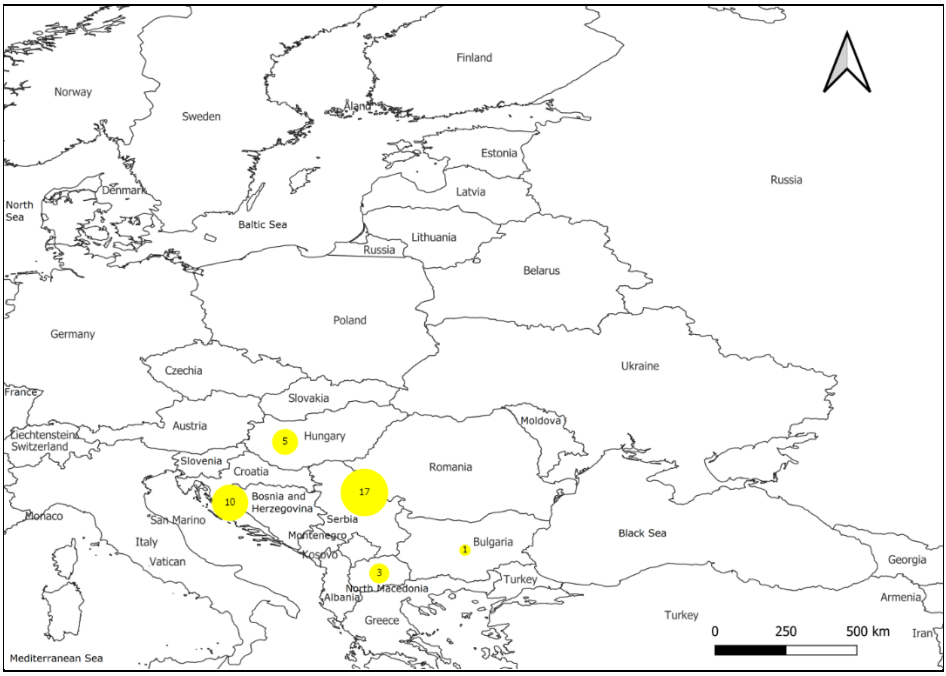

Fig. 7. Medal points in taekwondo
Source: own work based on [https://www.naturalearthdata.com]

Table 6. Country's position in the world ranking and total medal points in taekwondo

No.	World ranking	Country	Total medal points
1	13	Serbia	17
2	19	Croatia	10
3	29	Hungary	5
4	33	North Macedonia	3
5	44	Bulgaria	1

Source: own study

Wrestling

In the sport of wrestling, almost all countries in Central and Eastern Europe (16 out of 20 countries in the region) have achieved Olympic success, with Bulgaria and Hungary being particularly prominent, having attained the 7th and 8th place in the world respectively (Fig. 8, Tab. 7). In addition, Polish competitors have achieved notable success in wrestling, ranking 17th globally. The sport of wrestling has a long and rich history in Europe, which has contributed to its international achievements. At the Paris Games, athletes from Central and Eastern European countries secured eight new medals, including two gold, two sil-

ver, and one bronze for Bulgaria; two silvers and one bronze for Ukraine; one silver for Moldova; and two bronzes for Albania.

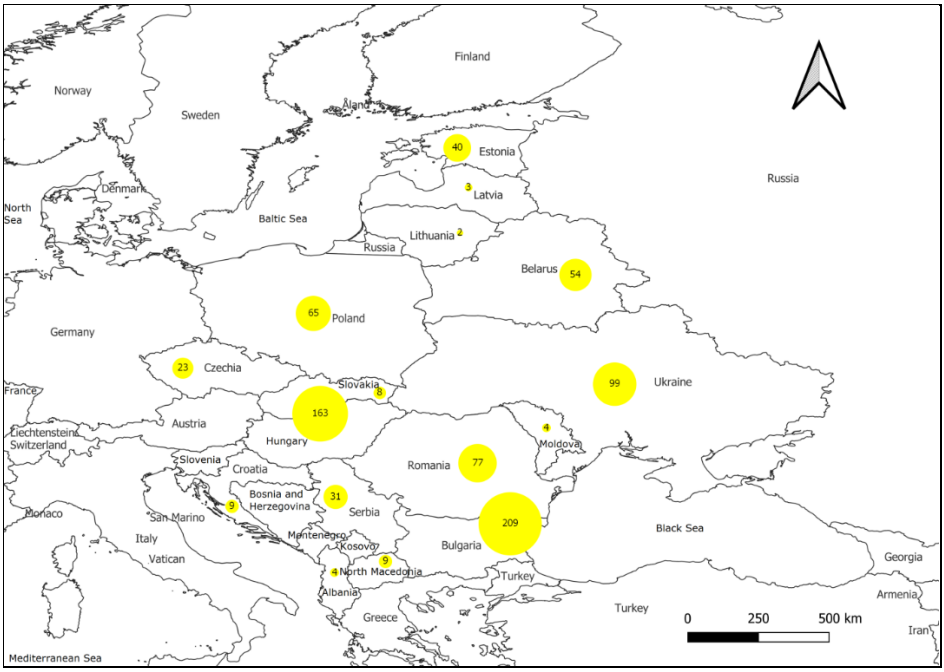

Fig. 8. Medal points in wrestling
Source: own work based on [https://www.naturalearthdata.com]

Tab. 7. Country's position in the world ranking and total medal points in wrestling

No.	World ranking	Country	Total medal points
1	7	Bulgaria	209
2	8	Hungary	163
3	13	Ukraine	99
4	15	Romania	77
5	17	Poland	65
6	19	Belarus	54
7	24	Estonia	40
8	29	Serbia	31
9	32	Czech Republic	23
10	40	Croatia	9
11	41	North Macedonia	9
12	42	Slovakia	8
13	45	Albania	4

Tab. 7. Country's position in the world ranking and total medal points in wrestling

No.	World ranking	Country	Total medal points
14	47	Moldova	4
15	50	Latvia	3
16	57	Lithuania	2

Source: own study

Discussion

The accomplishments of Central and Eastern European countries in Olympic competition in combat sports exhibit considerable variability (Fig. 9, Tab. 8). Hungary has the highest number of medal points (613), with a particularly strong performance in fencing and wrestling. Additionally, Hungary has achieved success in all combat sports analysed, with the first medal in taekwondo in 2024. The next countries to have achieved notable success, although with significantly fewer medal points, are Bulgaria and Poland (270 and 260 points, respectively). Bulgaria amassed the greatest number of medal points in wrestling and boxing; in only two combat sports (fencing and pentathlon), the country did not achieve any success. Poland achieved success at the Olympic Games in five of the seven disciplines under consideration, with Polish combat sports athletes gaining the most medal points in boxing, wrestling and fencing. Additionally, Ukraine and Romania have achieved a score of over one hundred points in the Olympic competition, with a total of 200.44 and 175 points, respectively. Notably, both countries have demonstrated the greatest success in boxing and wrestling. The remaining countries in the region have achieved comparatively little success, with the majority of medals won in wrestling, boxing and judo. To date, only two countries in the region – Bosnia and Herzegovina and Montenegro – have failed to win any medals in the disciplines under analysis.

The 2024 Olympic Games held in Paris yielded new data and facilitated new successes in combat sports. In total, Central and Eastern European countries secured 29 new medals (6 in judo, 4 in taekwondo, 1 in pentathlon, 7 in fencing, 3 in boxing and 8 in wrestling), including several instances of their inaugural successes in the discipline. Moldova achieved its inaugural medal success in judo, while Hungary and Bulgaria attained their first medals in taekwondo. In the combat sports analysed, Polish athletes were awarded two medals: one in boxing and one in team fencing. Notably, these were both won by women.

It should be noted that sports disciplines, including combat sports, are not permanently included in the Games programme.[20] For example, karate was not included in the programme of the Paris Games, and modern pentathlon has

[20] W. Lipoński, *Rattle Running, Dry Wrestling, and Boxing in … Opera, or Regional Sports and Games in the Historical and Cultural Tradition of Eastern Europe*, "The International Journal of the History of Sport" 2017, vol. 34, no. 10, pp. 899–914.

been undergoing modifications for several editions of the Games.[21] The article has filled the existing research gap concerning geography of Olympic combat sports in Central and Eastern Europe, including Poland. A line of research on the geography of combat sports that is planned for the near future is the participation of women in combat sports and its temporal changes.

It should be noted that the medals for Poland were won by women, which is a very important aspect, especially in the context of the growing role of women in Olympic sports. In general, there has been an increase in the number of women training in Olympic combat sports, which is an interesting direction for future research.[22]

In addition, some countries have been less successful in the disciplines analysed. This may be due to a lack of national tradition in a given sport, a lack of infrastructure, insufficient support for the development of that discipline in a given country, or, in general, a decline in the popularity of a given combat sport in the region.[23]

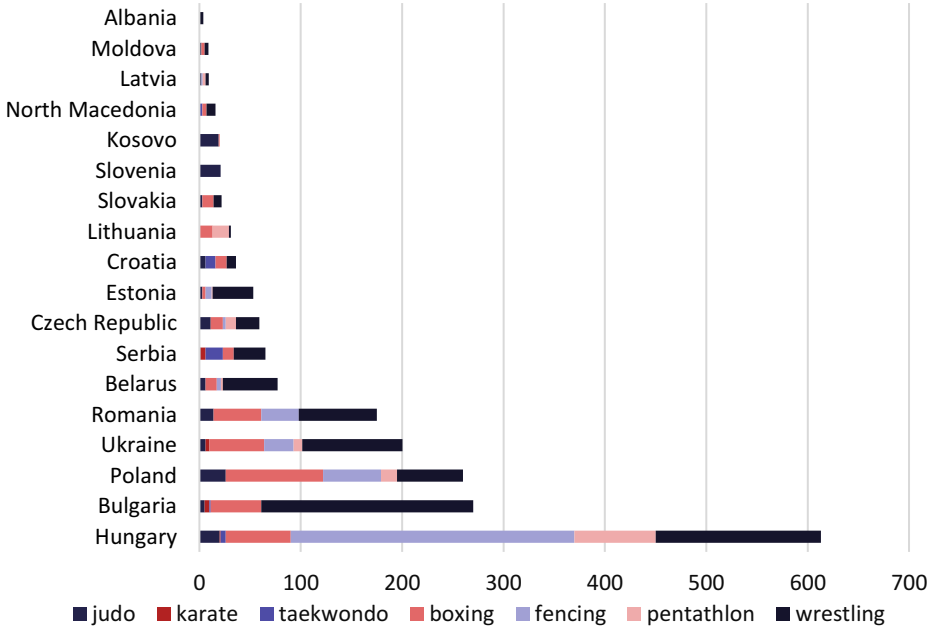

Fig. 9. Sum of points won by Central and Eastern European countries in combat sports at the modern Olympic Games
Source: own study

[21] L. Rappelt, L. Donath, *Changing Horses in Midstream: Modern Pentathlon After the 2024 Olympic Games*, "International Journal of Sports Physiology and Performance" 2024, vol. 19, no. 11, pp. 1347–1352.

[22] Z. Dziubiński, Z. Krawczyk, M. Lenartowicz M., *Socjologia kultury fizycznej*, Akademia Wychowania Fizycznego Józefa Piłsudskiego w Warszawie 2019.

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Tab. 8. Points scored by Central and Eastern European countries in individual martial arts at the modern Olympic Games

No.	Country	Boxing	Fencing	Judo	Karate	Modern pentath-lon	Taekwondo	Wres-tling	Total number of points
1	Hungary	64	280	20	1	80	5	163	**613**
2	Bulgaria	50	0	5	5	0	1	209	**270**
3	Poland	96	57	26	0	16	0	65	**260**
4	Ukraine	54	28.8	6	4	8.64	0	99	**200.44**
5	Romania	47	37	14	0	0	0	77	**175**
6	Belarus	11	4.2	6	0	2	0	54	**77.2**
7	Serbia	11	0	1	5	0	17	31	**65**
8	Czech Republic	12	3	11	0	10	0	23	**59**
9	Estonia	3	6	3	0	0.99	0	40	**52.99**
10	Croatia	11	0	6	0	0	10	9	**36**
11	Lithuania	13	0	0	0	15.99	0	2	**30.99**
12	Slovakia	11	0	3	0	0	0	8	**22**
13	Slovenia	0	0	21	0	0	0	0	**21**
14	Kosovo	1	0	19	0	0	0	0	**20**
15	North Macedo-nia	4	0	0	0	0	3	9	**16**
16	Latvia	0	1.2	2	0	3	0	3	**9.2**
17	Moldova	3	0	2	0	0	0	4	**9**
18	Albania	0	0	0	0	0	0	4	**4**

Source: own study

Conclusions

The most popular combat sports in the countries of our historical-geographical area are wrestling, boxing and judo, with 16, 15 and 15 medal-winning countries respectively, while the least popular are taekwondo and karate, with 5 and 4 medal-winning countries respectively. Modern pentathlon and fencing are of average popularity (8 medal-winning countries each), however, it is notable that the countries of our region occupy a prominent position in the world rankings for these disciplines.

The largest and most populous countries in our region, namely Hungary, Bulgaria, Poland, Ukraine and Romania, have secured the greatest number of medal points in combat sports. Among the combat sports analysed, Polish competitors have achieved the highest rankings in boxing, fencing and pentathlon. However,

in the Far Eastern combat sports that are represented at the Olympic Games, Polish athletes have only attained success in judo, and their performance in this discipline is not among the top ten in the world.

The countries of Central and Eastern Europe have been found to have the most Olympic successes in combat sports that are linked to the history and culture of our region. This is due to the fact that wrestling and boxing require a high degree of physical stamina, direct contact with the opponent, and do not require special equipment to practise them, thus making them quite accessible to many people. In contrast, fencing and pentathlon draw on several centuries of European equestrian and fencing traditions. The Far Eastern martial arts, karate and taekwondo, have been the least successful for Central and Eastern European athletes, although taekwondo is showing increasing popularity. The exception is judo, which is a combat sport in which many of the movements are similar to wrestling, hence the successes of athletes from our region. The conducted analysis delivered new, up to date knowledge on combat sports at the Olympic games, with focus on Poland.

DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interests with respect to the research, authorship, and/or publication of the article *Polish achievements in combat sports at the modern Olympic Games and their position compared to other countries in Central and Eastern Europe.*

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AUTHORS' CONTRIBUTIONS

Conceptualization – JB, ZNP & PAP; Methodology – JB, ZNP & PAP; Software – JB, ZNP & PAP; Validation – JB, ZNP & PAP; Formal analysis – JB, ZNP & PAP; Investigation – JB, ZNP & PAP; Resources – JB, ZNP & PAP; Data Curation – JB, ZNP & PAP; Writing - Original Draft – JB, ZNP & PAP; Writing - Review and Editing – JB, ZNP & PAP; Visualization – JB, ZNP & PAP; Supervision – JB, ZNP & PAP; Project administration – JB, ZNP & PAP; Funding acquisition – JB, ZNP & PAP.

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Część II

TEORIA I METODYKA WYCHOWANIA FIZYCZNEGO I SPORTU

SPORT I TURYSTYKA
Środkowoeuropejskie Czasopismo Naukowe

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PHYSIOLOGICAL AND FUNCTIONAL ADAPTATIONS OF HIGH-INTENSITY INTERVAL TRAINING AT TWO ALTITUDES IN MODERATE-ALTITUDE ENDURANCE RUNNERS: A RANDOMIZED CONTROLLED TRIAL

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Adaptacje fizjologiczne i funkcjonalne treningu interwałowego o wysokiej intensywności na dwóch wysokościach u biegaczy wytrzymałościowych uprawiających sporty wytrzymałościowe na średnich wysokościach: randomizowane badanie kontrolowane

Streszczenie

Wykazano, że trening interwałowy o wysokiej intensywności (HIIT) w warunkach hipoksji zwiększa wydolność sportowców na poziomie morza, ale istnieją ograniczone dowody dotyczące biegaczy na średnich wysokościach. Celem tego badania była analiza 8-tygodniowego treningu HIIT na niskich (~1220 m) i umiarkowanych (~2850 m) wysokościach pod kątem adaptacji fizjologicznych (maksymalna wydolność tlenowa (VO_2max) i prędkość związana z VO_2max (vVO_2max)) oraz funkcjonalnych (czas biegu na 5000 m (5kRT)). Czterdziestu dwóch wytrenowanych biegaczy długodystansowych zostało losowo przydzielonych do jednej z trzech grup: HIIT na wysokości 1220 m (HIIT1220m, n=14), HIIT na wysokości 2850 m (HIIT2850 m, n=14) lub grupy kontrolnej na wysokości 2850 m (CG2850 m, n=14). Podczas gdy wszyscy uczestnicy utrzymywali regularny trening

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na wysokości 2850 m, grupy HIIT ukończyły dwie cotygodniowe sesje (4x4-minutowy interwał pracy przy 100% vVO_2max, 3-minutowy odpoczynek przy 70% vVO_2max). Obie interwencje pokazały istotną poprawę w czasie ($p < 0,05$) w vVO_2max, VO_2max i 5kRT, z większymi zyskami w HIIT1220m (+1,2%, +1%, –1,8%) niż w HIIT2850m (+0,6%, +0,8%, –1,4%). Ponadto zaobserwowano silną korelację w HIIT2850m między zmianami w 5kRT i vVO_2max ($r = -0,64$, $p = 0,013$) i VO_2max ($r = 0,74$, $p = 0,002$). Podsumowując, HIIT na małych wysokościach wywołał większą poprawę funkcjonalną niż na umiarkowanych wysokościach. Dlatego sportowcy i trenerzy uprawiający sporty długodystansowe na średnich wysokościach mogą odnieść większe korzyści ze strategicznego zarządzania treningiem HIIT na niższych wysokościach.

Słowa kluczowe: wydajność sportowa, wydolność treningowa wytrzymałościowa, jakość treningu, pobyt na dużych wysokościach, sukces w bieganiu, niedotlenienie.

Abstract

High-intensity interval training (HIIT) under hypoxia has been demonstrated to increase sea-level athletes' performance, but limited evidence exists regarding moderate-altitude runners. This study aimed to examine 8-week HIIT at low (~1,220 m) and moderate (~2,850 m) altitudes on physiological (maximal aerobic capacity (VO_2max) and velocity associated with VO_2max (vVO_2max)) and functional (5,000 m running time (5kRT)) adaptations. Forty-two trained long-distance runners were randomly assigned to one of three groups: HIIT at 1,220 m (HIIT1220m, n=14), HIIT at 2,850 m (HIIT2850m, n=14) or control group at 2,850 m (CG2850m, n=14). While all participants maintained regular training at ~2,850 m, the HIIT groups completed two weekly sessions (4x4-minute work interval at 100% vVO_2max, 3-minute recovery at 70% vVO_2max). Both interventions had significant improvements over time ($p < 0.05$) in vVO_2max, VO_2max, and 5kRT, with greater gains in the HIIT1220m (+1.2%, +1%, –1.8%) than HIIT2850m (+0.6%, +0.8%, –1.4%), respectively. In addition, a strong correlation was observed in the HIIT2850m between changes in 5kRT and vVO_2max ($r=-0.64$, $p=0.013$) and VO_2max ($r=0.74$, $p=0.002$). In conclusion, HIIT at low altitudes induced greater functional improvements than it did at moderate altitudes. Thus, moderate-altitude long-distance athletes and coaches may benefit more when HIIT is strategically managed at lower altitudes.

Key words: sport performance, endurance training capacity, quality training, altitude residence, running success, hypoxia.

Introduction

Training for long-distance running focuses primarily on enhancing endurance, speed, and strength to achieve the shortest possible completion time. While running performance is influenced by a variety of factors, physiological variables, particularly maximum aerobic capacity (VO_2 max) and VO_2 max associated speed (vVO_2 max), hold premium shares (Midgley et al., 2007). These factors play critical roles in sprinting ability and oxygen utilization (Enoksen et al., 2011). In trained athletes, high-altitude and high-intensity interval training (HIIT) is widely employed to optimize physiological and functional adaptations by stimulating neuromuscular and physiological functions (Enoksen et al., 2011).

High-altitude training and exposure results in too low barometric pressure and a reduced fraction of inspired oxygen, which results in a decreased partial pressure of arterial oxygen and leads to a state of hypoxia (Conkin & Wessel, 2008). While altitude is commonly classified as low (500-2000 m), moderate (2000-3000 m), and high (3000-5500 m), significant reductions in VO_2 max start to occur at 500 m in elevation (Bärtsch et al., 2008). As a consequence, training and competitive performance are impaired because of compromised training quality. For example, the lactate threshold and VO_2 max intensity are significantly influenced during training, as demonstrated by a 6–10% reduction in running speed in excellent runners trained at an altitude of 2,100 m (Sharma et al., 2017). In a wider context, running speed is reduced by ~5–15% at high altitudes compared with sea level (Peltonen et al., 2001).

Taking these into account, athletes and coaches, aiming to maximize physiological adaptations, have adopted various strategies to optimize training by combining living and training at different natural and simulated altitudes. The most commonly applied protocols include live high train high (LHTH), live high train low (LHTL), and live low train high (LLTH) methods. Over the past half-century, high-altitude training has played a significant role in competitive success, contributing to approximately 90% of the medals won in middle distance to marathon events (Wilber & Pitsiladis, 2012). However, the underlying rationale behind the protocol was adopted for sea-level athletes on the basis of the success of high-altitude athletes' experience as an alternative means to ascend during the preparation for a specified period to achieve altitude training (Haugen et al., 2022; Khodaee et al., 2016; Wilber, 2007).

These protocols are also used in combination with HIIT, which is a form of speed-endurance training that effectively enhances performance when appropriately incorporated into the already high training volumes of endurance athlete programs (Iaia & Bangsbo, 2010). It involves repeated intense activity performed at or beyond the race pace, interspersed with low-intensity recovery (Atakan et al., 2021; Gibala & Jones, 2013). Various HIIT modalities have been characterized, ranging along a continuum from supermaximal repeated sprint training (lasting <20 sec) and maximal all-out sprint interval training (>20–45 sec) to submaximal long interval HIIT (2–4 min) sessions with intervals of work interspersed with interval recovery (Buchheit & Laursen, 2013; Helgerud et al., 2023). Among these, long interval HIIT has been shown to be effective in improving VO_2 max and running performance (Helgerud et al., 2023). This is due to the training intensity being sustained for longer durations at or around the athletes' VO_2 max (Laursen and Jenkins 2002), which lasts between 20 and 40 minutes of training sessions (Hottenrott et al., 2012).

The efficacy of HIIT in improving performance across different altitude conditions has been well-documented (Camacho-Cardenosa et al., 2018; Stankovic

et al., 2023). Several meta-analyses have consistently demonstrated that performing HIIT under hypoxic conditions leads to greater improvements in VO_2 max and running performance than performing HIIT under normoxic conditions does (Atakan et al., 2021; Bonetti & Hopkins, 2009; Chang et al., 2023; Fentaw et al., 2025; Gibala & Jones, 2013; Jacob et al., 2024). In the context of long-distance runners, several findings revealed that, compared with similar training conducted at sea level, HIIT performed under hypoxic conditions leads to greater improvements in VO_2 max and 5 km time (Jung et al., 2020; Park et al., 2022). In contrast, athletes following the LHTL protocol who reside at high altitude while performing HIIT at sea level have demonstrated greater gains than those following the LHTH approach (Levine & Stray-Gundersen, 1997; Stray-Gundersen & Levine, 1999). Despite the generally positive findings from these studies supporting HIIT as an effective strategy, most of the participants were lower-altitude athletes, which may limit the generalizability of the results to higher altitude populations.

This is because, the concept of altitude training for higher altitude native athletes encompasses a broader and more complex reality than what is typically explained in the literature. These athletes not only are temporarily exposed to high altitudes but are also permanently immersed in high-altitude environments. For example, East African distance runners have lived and trained at elevations between 2,000 and 2,500 m in almost all training intensity zones for lifetimes (Haugen et al., 2022). In this context, there is a notable lack of research examining specific HIIT strategies aimed at performance development. In particular, limited research attention has been given to understanding how HIIT performed at low and moderate altitudes responds in athletes who are already adapting to living and training at higher altitudes. This question has practical implications for optimizing training strategies in altitude-native populations. As a result, the current body of evidence is difficult to interpret across all running populations, given the variability in altitude conditions with real-life training and competition. A recent review highlighted that the capacity of moderate-altitude long-distance runners to perform HIIT at different altitudes has not yet been systematically investigated (Fentaw et al., 2025).

In light of these considerations, athletes who reside and train at high altitudes present a distinct population, methodological, and environmental gaps that warrant investigation to optimize training outcomes. To address this gap, the present study aimed to examine the physiological and functional adaptations to HIIT performed at two different altitudes among endurance runners residing at moderate-altitude. More specifically, this study sought to address the following research questions: (1) Does HIIT conducted at low-altitude (~1,220 m) and moderate-altitude (~2,850 m) produce differential effects on VO_2 max and vVO_2 max?, and (2) Does HIIT at a lower altitude would result in superior

improvements in functional performance, as measured by Coopers' 12 minute run, and 5,000 m running time?

Based on previous literature, we hypothesized that managing HIIT at lower altitudes would result in greater improvements in vVO_2 max and VO_2 max than HIIT would at the athletes' residence moderate-altitude. In addition, it was hypothesized that considering higher-quality training at low altitudes would improve functional performance.

Materials and methods

Study design

This study was a balanced randomized control trial designed to minimize variations among groups in which athletes were matched to ensure equal distributions of sex, event specialization, and 5,000 m running time (5kRT). The participants were active competitors who lived and trained at moderate altitudes (~2,850 m). They were included in the study if they: 1) were at least three years of training age, 2) were 18 years of chronological age, 3) did not perform systematic training during a transition period, 4) had at least a history of regional competition, 5) trained and competed from 3 km--to-marathon events, 6) were not trained or exposed to low altitudes <1,500 m within the previous three months for more than 48 hours and 7) provided a completed physical activity prescreening questionnaire and informed consent documents. On the other hand, the study excluded participants with recent illnesses or injuries that limit training and racing, such as heat allergies, epistaxis, malaria, fever, gastrointestinal distress, pregnancy, and anaemia. Moreover, those who could not provide informed consent or who were missing more than 20% of the usual training or intervention data were excluded.

Sample size determination

The required sample size was estimated on the basis of the recommended and previously published VO_2 max effect size (0.34) (Cohen, 1992; Levine & Stray-Gundersen, 1997), via a priori-repeated measures ANOVA with a preliminary power analysis (G*Power 3.1.9.7) for repeated measures design with three groups and two measurement points. A total of thirty-nine participants (13 per group) were required to detect the expected effect size with a statistical power of 0.95 and an alpha (α) level of 0.05. To account for an anticipated dropout rate of approximately 10% (4 participants) due to potential missing data (Suresh & Chandrashekara, 2012), additional five participants were recruited to ensure balanced group distributions. This approach results in a total sample size of 48.

Consequently, among 119 moderate-altitude resident long-distance runners from local athletics clubs, seventy-one were excluded for various reasons. Forty-eight (24 females and 24 males) athletes agreed to participate and signed an informed consent form after they were informed about the study's purpose, possible risks, and benefits. Randomization was employed via stratified allocation, where sex, event specialization and 5kRT were considered randomly and equally assigned to 16 participants (8 males and 8 females); either the HIIT group at moderate altitude (HIIT2850m), the HIIT group at low altitude (HIIT1220m), or the control group at moderate altitude (CG2850m). To ensure unbiased allocation, the second author was determined in sequence and was situated outside during recruitment, and stratification and coding were performed by the first and third authors. Among the included participants, six (two in each group) dropped out of the study for personal reasons. The final analysis included 14 athletes in each group, distributed as follows: HIIT2850m (n = 14), HIIT1220m (n = 14), and CG2850m (n = 14), as shown in Figure 1. The participants baseline characteristics prior to the intervention are presented in Table 1.

Table 1
Anthropometric, training, and performance characteristics of the participants before the HIIT intervention at low and moderate altitudes

Variable	All subjects	Intervention			p value (η_p^2)
		HIIT2850m	HIIT1220m	CG2850m	
Number of participants	42	14	14	14	
Sex (male/female)	23/19	7/7	8/6	8/6	
Chronological age (yrs.)	22.2±4.3	22.2±5	22.6±4.6	21.7±3.4	.86 (.008)
Training age in running (yrs.)	6.2±2.3	6.3±2.6	6.4±2.6	5.9±1.7	.87 (.007)
Competition experience (yrs.)	4.8±1.8	4.9±2.2	4.9±1.7	4.4±1.6	.72 (.02)
Training frequency (days·wk^{-1})	6.8±1.3	6.6±1	6.8±1.2	7.1±1.6	.59 (.03)
Height (m)	1.64±0.07	1.63±0.08	1.65±0.07	1.63±0.06	.81 (.011)
Body mass (kg)	49.5±5.3	49.7±5.4	49.9±6	48.8±4.8	.84 (.009)
Body mass index (kg/m^2)	18.4±1.2	18.7±1.2	18.4±1.1	18.3±1.3	.67 (.02)
5000 m race time (min)	18±1.7	18.2±2.1	17.9±1.2	18±1.7	.9 (.005)
VO_2 max (mL/kg/min)	63.2±7.3	62.8±7.6	63.4±7.6	63.3±7.2	.97 (.002)
100% intensity (m·s^{-1})	—	5.12±0.34	5.22±0.42	—	.4 (.022)

The values are the means ± standard deviation (SDs). No significant differences were observed among groups in any variable. *p* values and effect sizes (η_p^2) refer to group comparisons prior to the intervention.

Abbreviations: HIIT2850m, high-intensity interval training group at moderate altitude; HIIT1220m, high-intensity interval training group at low altitude; CG2850m, control group at moderate altitude; p value, probability value; η_p^2, partial eta-squared; VO_2 max,: maximum aerobic capacity; mL/kg/min, milliliters of oxygen used up in a minute per kilogram of body weight; m·s^{-1}, meter per second; yrs., years; wk^{-1}, training sessions per week.

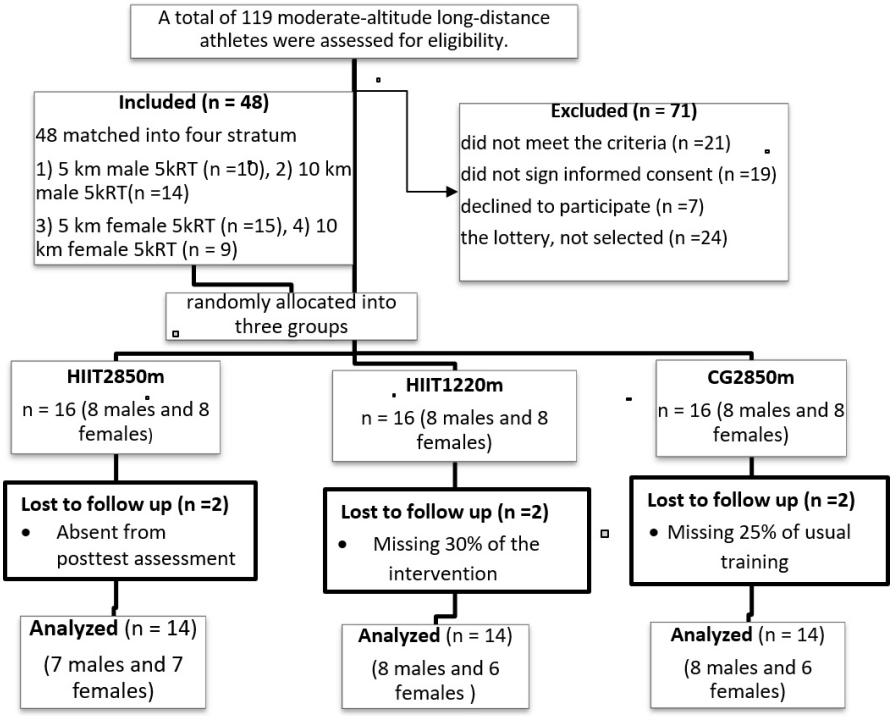

Figure 1
Flow of participant recruitment, eligibility assessment, randomization, and final analysis. Abbreviations: 5kRT, 5, 000 m running time; HIIT2850m, high-intensity interval training group at 2,850 m; HIIT1220m, high-intensity interval training group at 1,220 m; CG2850m: a control group living at 2,850 m.

The participants were engaged in regular long-distance running and were classified as trained runners. The experimental procedures were submitted, and the Sport Academy ethical committee at Bahir Dar University approved of the study [Approval Number: IRERC 06/2024, Bahir Dar, Ethiopia]. The study procedures were performed according to the ethical standards outlined by the Helsinki Declaration of 1975.

High-intensity interval training protocol

The intervention was applied for eight weeks at 2,850 m (Debark) and 1,220 m (Zarima) to the HIIT2850m and HIIT1220m groups, respectively. Training was provided on a 400 m track for two nonconsecutive sessions per week (Monday and Thursday) to allow sufficient recovery. In contrast, CG2850m did not participate in any additional training program but maintained their usual running with the other groups at 2,850 m. The HIIT sessions consisted of four phases as previously described by Helgerud et al., (2007): a) warm-up of a ten-minute period

at 70% vVO_2 max consisting of continuous jogging followed by dynamic stretching along with jogging; b) main interval running for 25 min, which consisted of four 4-min running intervals, each separated by 3 min of active recovery at 70% vVO_2 max; and c) five-minute cooling down at 50% vVO_2 max. Each session lasted approximately 40 minutes. At each altitude training site, the number of intervals, interval duration, and intensity during work and rest intervals remained constant throughout the intervention for both HIIT groups to ensure reliable training stimuli. However, the intensity was determined on the basis of each participant's vVO_2 max value via a 5-minute maximal aerobic speed test taken at intervention venues, in which participants were grouped based on the equivalent vVO_2 max performance for the intervention. In each interval run, in addition to a verbal instruction, a whistle signal was also blown to alternatively utilize the 100% and 70% vVO_2 max performance to complete efficiently. Accordingly, immediately after each interval, training intensity was continuously monitored by two experienced coaches and two sports training research experts focusing on vVO_2 max, running pace, and the Borg scale (6–20), following the intensity measures adopted by Ciolac et al. (2015).

Procedures

The participants were informed about the study's aim, methodology, and procedures. Prior to testing, the procedures were thoroughly explained to the participants to ensure familiarization. The VO_2 max, vVO_2 max, and 5kRT measurements were preceded by a standardized warm-up, which consisted of 12 minutes of jogging, and 8 minutes of dynamic movements for the upper and lower extremities combined with 40 meters of back-and-forth jogging. The participants with similar performances were grouped to run together for motivation and were encouraged to perform maximally. Finally, the athletes performed the tests accordingly, as the assessors told them to perform measurements before and after eight weeks of intervention.

The participants performed the usual training preparation for cross-country competition at approximately 2,850 m (Debark, Ethiopia). While the HIIT2850m group was trained at their usual residence in Debark for eight weeks, the HIIT1220m group participants was transported 38 km downhill by car to a low-altitude location (approximately 1,220 m) for their HIIT sessions. These low altitude HIIT sessions were conducted at the foothills of Lima-Limo and Semein Mountains National Park at Zarima, Ethiopia during the specific preparation training phase. All testing and training sessions took place in the morning, between 8:00 and 10:00 a.m., on a 400-m track, from September 26 to November 20, 2024.

All tests were conducted at 2,850 m training venue separated by at least 48 hours after each visit to allow sufficient recovery at a properly measured 400 m

round outdoor field track. The participants were also encouraged to maintain their usual nutrition and hydration habits, perform the same warm-ups, rest throughout the study, and be vigorously encouraged during testing. In addition, the participants were instructed to abstain from stimulants or alcoholic beverages one day before the test. Before each measurement, all the participants confirmed that they obtained adequate rest and recovery and abstained from exhausting training for at least two days. The participants performed testing at the same time of day under similar environmental conditions.

MEASUREMENTS

PRE-AND POST-TEST PRIMARY OUTCOMES

MAXIMAL AEROBIC CAPACITY

Despite the laboratory treadmill test being the gold standard for measuring VO_2 max, Cooper's 12-minute running test is simple and cost-effective to administer. It is the best predictor of an athlete's VO_2 max (r= 0.9) as described elsewhere (Bandyopadhyay, 2015). The relative VO_2 max (mL/kg/min, milliliters of oxygen used up in a minute per kilogram of body weight) was estimated with the help of Cooper's 12-minute run test. In particular, this test has excellent accuracy and reliability in predicting the VO_2 max of endurance runners (Alvero-Cruz et al., 2017).

Following the warming-up, the test was conducted at a properly measured 400 m outdoor round track marked every 10 m. Hence, athletes ran in 5kRT matched groups as a source of motivation for twelve minutes as long as possible to record a greater possible distance to cover along with other athletes. The estimated VO_2 max (mL/kg/min) value was obtained from Cooper's twelve-minute test (D12 km) in kilometers. Accordingly, it was calculated via Bandyopadhyay's regression equation for predicting the VO_2 max of males (equation (eq.) (1), r=0.9) and females (equation (2), r=0.9), respectively:

Eq. 1. VO_2 max (mL/kg/min) = (22.351 × D12 km)-11.288)

Eq. 2. VO_2 max (mL/kg/min) = (19.55 × D12 km)-2.39)

Minimum running velocity at VO_2 max

The VO_2 max velocity (vVO_2 max) is the maximal aerobic speed (MAS) (Renoux et al., 2000), which is the point at which VO_2 max starts to occur and helps to determine athletes' performance. While the vVO_2 max laboratory measure is the gold standard for determining the vVO_2 max, its cost, complexity, and impracticality have led to the development of several field measures, such as the multistage Montreal Beep, set time trial, and set distance trial (Baker & Heaney, 2015). However, the time set (5-minute) trial is easy, quick, and highly correlated with the laboratory measure of vVO_2 max (r= 0.94) (Berthon et al., 1997;

Chamoux et al., 1996), in which athletes perform maximal efforts in the allotted time to cover more distance as fast as possible.

Meanwhile, following the warm-up, the athletes were instructed to run 5-minute time trials as fast as possible to cover more distance around a marked 400 m running track. In each group, athletes of similar 5kRT and sex ran together and were encouraged to cover more distance and maintain higher paces in the allotted time. Subsequently, while counting down the last 10 seconds in the given time (10--1), the athletes immediately got stationary at the last count. Hence, the distance covered in meters over five minutes was recorded. Accordingly, the vVO_2 max is determined by dividing the distance covered in meters by the given time in seconds.

5000 M RUNNING TIME (5KRT)

The 5kRT test was initiated after adequate warm-up exercises. Athletes were instructed to achieve the best time possible in the trial in which they ran alongside others. The start was given as usual in the competition at the start line. Wearing watches during the run was not allowed, while the laps and times were recorded and put down for each 400 m split by the runners' coach. The total time to complete the 5kRT was recorded at the closest of 0.01 s as the athletes crossed the finish line. Three experienced timers, two of whom were the athletes' coaches and one assessor, provided the mean values for analysis.

SECONDARY OUTCOME MEASURES

ANTHROPOMETRIC CHARACTERISTICS

The participants' height and body mass were measured simultaneously via a height-rod–equipped stadiometer with an integrated digital scale (model: SKU, KC-3001), accurate to the nearest 0.1 cm and 0.1 kg. The measurements were taken with the participants wearing light clothing standing barefoot in an upright position, with heels together and the head aligned in the Frankfort plane. Each measurement was repeated under consistent conditions, and the mean value was recorded to ensure reliability. The participants body mass index (BMI) value was subsequently calculated as body mass (kg) divided by height squared (m^2), using the formula BMI = body mass/height^2.

TRAINING AND PERFORMANCE CHARACTERISTICS

The participants completed a questionnaire survey about their general training and performance history.

COVERED DISTANCE AND TRANSFORMED SPEED

The measured covered distance during the five-minute MAS and Cooper twelve-minute run tests and its transformed speed in meters per second were used in the analysis. This helps reveal the influence of the training intervention on speed and endurance performance via a holistic approach.

Statistical analysis

The data are presented as the means and standard deviations (SDs) in the text and tables. To ensure that, the participants' anthropometric, training, and performance levels among groups were compared via one-way analysis of variance (ANOVA). In addition, we used independent t tests to compare 100% MAS training interventions, and paired t tests to assess changes over time for practical significance. These effect sizes, expressed as Cohen's d, are classified as small (0.2–0.4), moderate (0.5–0.7), or large (≥0.8) (Cohen, 1988). All the statistical analyses were performed via IBM SPSS statistics version 27.0.1, with a significance level set at $p \leq 0.05$. The Shapiro–Wilk and Levene tests confirmed the data normality and homogeneity of variances ($p > 0.05$), respectively. Consequently, two-way repeated measures ANOVA was used to identify the effects of the group (HIIT2850m, HIIT1220m, CG2850m) and time (pretest and posttest) conditions. Where appropriate, Bonferroni post hoc analysis was performed to determine the source of the difference when significant differences in group or interaction were observed. The partial eta-square (η_p^2) was calculated as an effect size measure for all analyses and interpreted as small (0.01–0.06), moderate (0.06–0.14), or large (>0.14) effects (Cohen, 2013). The potential relationship between changes in VO_2 max and vVO_2 max scores with a 5,000 m running time was determined via Pearson correlation.

Results

Baseline characteristics of the subjects

The anthropometric, training, and performance characteristics of the three groups examined at baseline are depicted in Table 1. There were no significant differences ($p>0.05$) in any of the baseline anthropometric, training, or performance characteristics among the groups. Forty-two athletes completed the study, whereas six athletes (two in each group) dropped out for non-intervention reasons (2-absent from assessment, 2-missing more than 25% of the usual training and 2-missing 30% of the intervention), and their data were excluded from the analysis. Hence, a similar profile at baseline and training intensity ensures that the observed changes resulted from the intervention rather than prior differences. On the other hand, no significant differences were found

among the exercise intensities, explained as % vVO_2 max over the intervention. Hence, the total training load (volume and intensity) of the two experimental groups was similar over the intervention period.

Minimum running velocity at VO_2 max

A summary of the physiological variables measured before and after the HIIT intervention is presented in Table 2 and Figure 2. Significant differences were found for the main effect of time ($p<0.001$; $\eta_p^2=0.3$) and the group × time interaction ($p=0.02$; $\eta_p^2=0.19$) effects for vVO_2 max after training. However, the post hoc analyses revealed no significant differences in the vVO_2 max mean difference between the groups. The mean changes in vVO_2 max were 0.04±0.05, 0.6% vs 0.06±0.07, and 1.2% in the HIIT2850m and HIIT1220m intervention groups, respectively, with 0.004±0.02 and no changes in the control group. However, there was no significant main effect of group ($p=0.98$; $\eta_p^2=0.001$). In addition, the distance covered within five minutes of the MAS test increased in both intervention groups, with higher values observed in the HIIT1220m group.

Maximum aerobic capacity

Repeated-measures ANOVA demonstrated that the VO_2 max (mL/kg/min) significantly increased to the mean ± SD: 0.52±0.5 and 0.6±0.5 in the HIIT2850m and HIIT1220m groups, respectively, after HIIT at the two altitudes. This finding revealed that the VO_2 max significantly improved, and these increases were greater in the HIIT2850m (0.8%) and HIIT1220m (1%) groups than in the CG2850m (0.2%) group after the intervention, with no significant main effect of group ($p=0.97$, $\eta_p^2=0.002$) as shown in Table 2. Post hoc analyses revealed that the VO_2 max was not significantly different between the groups. However, HIIT at 1,220 m resulted in a significantly greater increase in the mean change in the VO_2 max (0.6±0.5; $p<0.001$) than HIIT at 2,850 m (0.5±0.5; $p<0.001$) and CG2850m (0.13±0.3, $p=0.16$) did.

In addition, the distance covered within the twelve-minute Cooper test increased in both intervention groups. However, the speed improved more in the HIIT1220m group than in the HIIT2850m group. The improved VO_2 max assisted in covering more distances in the Cooper run test at individual intensity, but it was different in the control groups. The VO_2 max mean difference within the group was significantly greater in the lower-altitude training group than in the moderate-altitude training group after HIIT, with no baseline difference. The Cooper 12-minute run covered a distance that increased in both intervention groups, whereas in the HIIT1220m group, there was a greater extent of improvement. The covered distance in twelve minutes of running and its speed in $m \cdot s^{-1}$ occurred at the same percentage change, which was quite similar to the VO_2 max values between the intervention groups.

Table 2

Changes in physiological and functional performance measured before and after eight weeks of HIIT at low (HIIT1220m) and moderate (HIIT2850m) altitudes

Variable	Intervention									Effect p value (η_p^2)		
	HIIT2850m (n=14)			HIIT1220m (n=14)			CG2850m (n=14)			Group	Time	Interaction
	pre	post	Δ, p value, ES	pre	post	Δ, p value, ES	pre	post	Δ, p value, ES			
5-min. Distance (m)	1525.5±99.7	1535.9±95.4	10.4±13.4, 0.01*, 0.8	1527.6±91.7	1545.3±92.3	17.7±20.2, 0.006*, 0.9	1535.4±94.5	1536.6±96.6	1.1±5.7, 0.47, 0.2	0.98 (0.001)	<0.001 (0.3)	0.02 (0.19)
v VO_2 max ($m \cdot s^{-1}$)	5.09±0.33	5.12±0.32	0.04±0.05, 0.01*, 0.8	5.09±0.31	5.15±.31	0.06±0.07, 0.006, 0.9	5.12±.32	5.12±0.32	0.004±0.02, 0.47, 0.2	0.98 (0.001)	<0.001(0.3)	0.02 (0.19)
Cooper 12-min distance (m)	3302.6±348.7	3327.4±355.2	24.8±22.3, 0.001*, 1.1	3332.1±351.8	3360.4±346.5	28.4±25.1, <0.001*, 1.1	3326.7±332.9	3332.4±332.6	5.7±14.5, 0.16, 0.4	0.97 (0.001)	<0.001(0.5)	0.02 (0.19)
Cooper 12-min speed ($m \cdot s^{-1}$)	4.6±0.48	4.6±0.49	0.03±0.03, 0.001*, 1.1	4.6±0.49	4.7±0.48	0.04±0.04, <0.001*, 1.1	4.6±0.46	4.6±0.46	0.01±0.02, 0.096, 0.4	0.97 (0.001)	<0.001(0.5)	0.02 (0.19)
VO_2 max (mL/km/min)	62.8±7.6	63.3±7.7	0.52±0.47, 0.001*, 1.1	63.4±7.6	64±7.5	0.6±0.52, <0.001*, 1.1	63.3±7.2	63.4±7.2	0.13±0.31, 0.16, 0.4	0.97 (0.002)	<0.001(0.5)	0.02 (0.19)
5kRT (min.)	18.2±2.2	17.9±2	-0.3±0.4, 0.03*, -0.7	17.9±1.2	17.6±1.2	-0.34±0.4, 0.007*, -0.9	17.99±1.7	17.89±1.8	-0.1±0.4, 0.33, -0.3	0.98 (0.001)	<0.001(0.3)	0.3 (0.07)
5kRT speed ($m \cdot s^{-1}$)	4.64±0.56	4.7±0.53	0.06±0.1, 0.04*, 0.6	4.7±0.3	4.8±0.3	0.09±0.1, 0.008*, 0.8	4.7±0.44	4.7±0.47	0.03±0.1, 0.29, 0.3	0.97 (0.002)	<0.001(0.3)	0.34 (0.05)

The values are means ± standard deviations. Δ represents the mean difference between pretest and post-intervention values, with corresponding *p* values and effect sizes (ES). $p < 0.05$ indicates a significant change over time. Group, time, and interaction effects are reported with *p* values and partial eta-squared (η_p^2).* The across-time mean difference is significant at 0.05.

Abbreviations: HIIT2850m, high-intensity interval training group at moderate altitude; HIIT1220m, high-intensity interval training group at low altitude; CG2850m, control group at moderate altitude; p value, probability value; η_p^2, partial eta-squared; Δ, the mean difference; ES, effect size; VO_2 max, maximal aerobic capacity; vVO_2 max, velocity at maximum aerobic capacity; $m \cdot s^{-1}$, meters per second; mL/km/min, milliliters of oxygen used up in a minute per kilogram of body weight; 5kRT, 5000 m running time; pre, before an 8-week intervention; post, after an 8-week intervention.

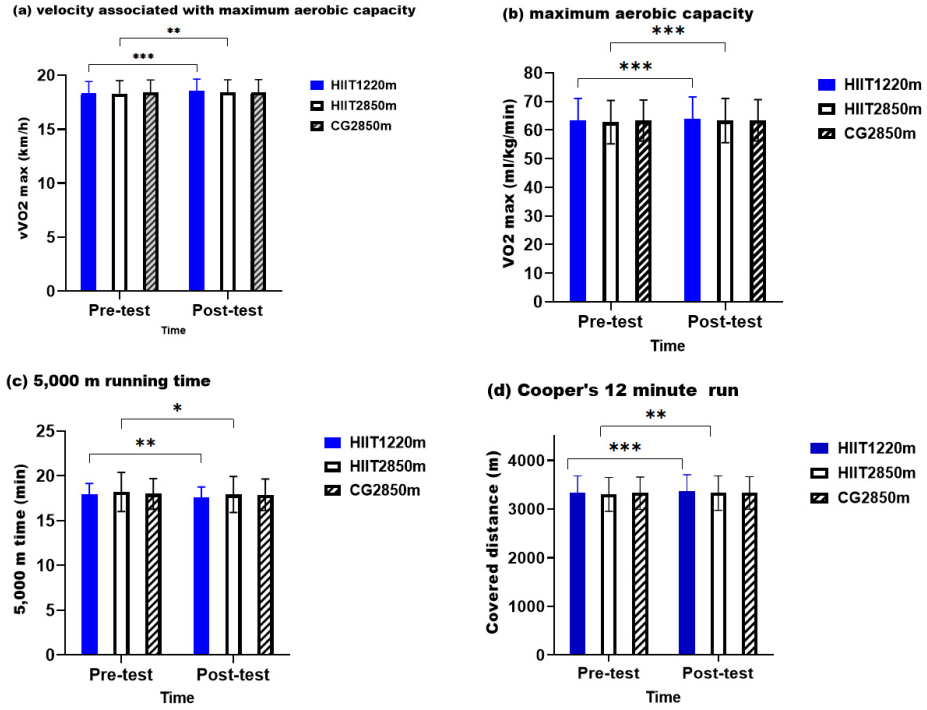

Figure 2
Physiological and functional variables before and after high-intensity interval training (HIIT) at two different altitudes. The panels illustrate (a) running velocity at VO_2max (vVO_2 max, km·h^{-1}), (b) maximal oxygen uptake (VO_2 max, mL·kg^{-1}·min^{-1}), (c) 5 km running time (5kRT, min), and (d) distance covered during the 12-minute Cooper run test. The data are presented as mean ± standard deviation (SDs). Significance levels are denoted by asterisks: * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.

5,000 m running performance

The 5kRT performance after intervention training significantly improved over time, as indicated by a significant main effect of time ($p<0.001$, $\eta_p^2=0.34$). In contrast, the change scores of the HIIT2850m and HIIT1220m groups improved compared with those of the CG2850m group (shown in Table 2). However, there was a significant increase in the mean change in the HIIT2850m (Δ=-0.3±0.4, p=0.03) and HIIT1220m (Δ=-0.34±0.4, p=0.007) groups after the intervention compared with the CG2850m group (Δ=-0.1±0.4, p=0.33). However, the magnitude of improvement was greater in the HIIT1220m group (1.8%) than in the HIIT2850m group (1.4%). The post hoc analyses indicated no significant differences in running time between the groups. Nevertheless, it was significantly greater in the lower-altitude training group than in the moderate-altitude HIIT group. The running speed was the same as the percentage change in the

5kRT between the groups. Despite significant improvements in 5kRT in both groups following HIIT, the HIIT1220m group performed better. The speed to cover the running race increased in both groups, similar to the 5kRT.

Physiological and functional performance correlations

A strong negative association was found between 5kRT and vVO_2 max (r=-0.64, p=0.013) and positive association between 5kRT and VO_2 max (r=0.74, p=0.002) in the HIIT2850m group following training. However, weak associations were observed between 5kRT and vVO_2 max (r=0.31, p=0.286) and VO_2 max (r=-0.07, p=0.809) in the HIIT1220m group after training. These findings suggest that quality training at moderate altitudes has a positive effect on inducing changes in physiological parameters compared with training at low altitudes. However, weak associations were found in the control group (VO_2 max: r=-0.16, p=0.58; vVO_2 max: r=0.08, p=0.776).

Discussion

In this study, we examined the effects of manipulating HIIT at two different natural altitudes on selected physiological (vVO_2 max and VO_2 max) and functional (5,000 m race performance, maximal aerobic speed, and Coopers' 12-minute run) adaptations in moderate-altitude resident long-distance athletes. The main observation of this study is that high-intensity training performed at low altitude leads to greater improvements in 5,000 m running time compared to training at moderate altitude, resulting in enhanced physiological adaptations among moderate-altitude endurance runners.

Interestingly, compared with HIIT2850m (-0.3 ± 0.4, -1.4%) and CG2850m (-0.1 ± 0.4, -0.6%), HIIT at 1,220 m elicited a significantly greater performance improvement of 5,000 m time by (-0.34 ± 0.4, -1.8%). Moreover, vVO_2 max and VO_2 max substantial changed within the HIIT1220m and HIIT2850m groups compared with the CG2850m group. However, vVO_2 max and VO_2 max substantially differed between the HIIT1220m and HIIT2850m groups. These observed results indicate that lower-altitude environments most likely enable athletes to maintain high-intensity training at the VO_2 max training velocity and improved pacing adaptations that help improve the economy of running, which enables improvements in the vVO_2 max, VO_2 max and 5,000 m running performance. HIIT at high altitudes requires special caution in monitoring intensity, even for high-altitude residential athletes, to elicit induced adaptations.

Although our findings do not necessarily challenge the existing knowledge on high-intensity training at high altitudes, our study sought to test the hypothesis: What are the physiological and functional benefits of performing high-in-

tensity training at high versus low altitudes for moderate-altitude athletes? As altitude increases, the difficulty of performing high-intensity training prevails for moderate-altitude athletes, similar to sea level athletes. Hence, the possible improvement mechanisms following HIIT at two different altitudes are related to the efficiency of HIIT loads performed at the individual maximal potential. At baseline, there were no differences among the groups, suggesting that potential differences at baseline did not influence the results. The variables were measured at moderate altitudes to create similar conditions and decrease substantial variance.

While HIIT provides a powerful spur for cardiovascular and central adaptations (Gibala & Jones, 2013), in our study, some differences in HIIT load between the intervention groups were considered to occur due to the influence of altitude variation. Nevertheless, no significant difference was found in exercise intensity, explained as % vVO_2 max, across the intervention groups. The interval running speed differed between low and moderate altitudes, with a 3.33% increase in speed observed in the low-altitude training groups. Consequently, the HIIT1220m group trained slightly faster than did the moderate-altitude training group. Notably, the physiological stress experienced during high-altitude running is considered a training load. The total training load, duration, and frequency were comparable between the two experimental groups over the intervention period. These findings support the conclusion that the training interventions were similar across the study period.

Hence, the training intervention was performed individually to tailor the maximal aerobic speed in an environmentally determined program in which similar protocols were implemented. This finding indicates that vVO_2 max values were relatively similar for all participants across the HIIT sessions. In addition, the total HIIT duration was similar for both intervention groups. As such, significant VO_2 max and aerobic performance adaptations are observed following HIIT at 100% vVO_2 max in endurance athletes (Gibala & McGee, 2008). In particular, competitive runners benefit from this type of training (García-Pinillos et al., 2017).

More specifically, studies have been conducted in the case of lower-altitude athletes using HIIT at simulated and natural altitudes for middle and long-distance runners. However, athletes residing at high altitudes and sea levels have similar VO_2 max values; the only difference was the low cost of running found in high-altitude athletes (Saltin et al., 1995). In addition, sea-level athletes show a decline in performance at high altitudes, whereas altitude athletes have better physiological and recovery adaptations (Aughey et al., 2013). Acute and chronic altitude exposure influences the actual performance of low- and high-altitude natives differently, which might give high-elevation natives a competitive advantage at altitudes above 1,500 m (Mateo-March et al., 2022). Hypoxic training

has been shown to enhance endurance performance by improving metabolic function and capillary characteristics (Suzuki, 2022).

The findings of this study are congruent with the previous results of Levine and Stray-Gunderson (1997), who demonstrated a 5% VO_2 max improvement in the LHTL and LHTH groups, who received high-intensity training at sea level and high altitude, respectively. However, the LLTL group yielded no improvements. Nakamoto et al., (2016) also reported a significant improvement in VO_2 max following HIIT under hypoxia, whereas the normoxic group failed to show differences. In addition, other studies also demonstrated that VO_2 max improvements following HIIT under hypoxia and normoxia were apparent (Jung et al., 2020; Park et al., 2022) and that there were no improvements in VO_2 max under either condition (Neya et al., 2007).

Moreover, while most previous studies employed simulated altitudes conditions, Levine and Stray-Gundersen (1997) uniquely examined sea-level endurance athletes at natural altitudes. In contrast, the present study involved moderate-altitude long-distance athletes who trained in their native environment. This training protocol is therefore considered essential for promoting both physiological and functional adaptations.

Although running performance is influenced by several factors, such as age, fitness level, and the intensity and duration of the intervention, the VO_2 max improved from 4–46% (Burgomaster et al., 2008; Helgerud et al., 2007). In previous studies, the VO_2 max changes following HIIT under hypoxia and normoxia in lower altitude distance running athletes were 4–13% and 1–5%, respectively (Jung et al., 2020; Levine & Stray-Gundersen, 1997; Nakamoto et al., 2016; Park et al., 2022). Furthermore, a 3% improvement in VO_2 max was observed (Stray-Gundersen et al., 2001). In our study, however, 0.8% and 1% VO_2 max improvements were observed in the moderate- and low-altitude HIIT groups, respectively. The underlying mechanisms of these changes were not assessed, these findings indicate that such mechanistic gains may be mediated by improved mitochondrial biogenesis, increased capillary density, increased enzymatic activity, neuromuscular adaptations, or hormonal responses to greater hormones and improvements following HIIT (Mølmen et al., 2025). Similarly, Geiser et al. (2001) reported that the VO_2 max increases from 8.5--11.1% and 2.9--7.2% in response to normoxia and hypoxia, respectively, in response to hypoxic training. Aerobic capacity adaptations decline after altitude training but peak within 1–3 weeks (Chapman et al., 2014).

Another finding of this study is that the vVO_2 max improved in both intervention groups. The improvement in vVO_2 max may have been attributed to the training load being prescribed according to the maximal aerobic speed, which performs similar relatively high-intensity training independently to help maintain and improve pace adaptations. The maximal aerobic capacity improved sim-

ilarly in both training groups. This may improve body oxygen utilization and delivery during high-intensity training. This occurred because low-altitude groups tend to have greater potential for oxygen access than moderate-altitude groups do. The training protocol of this study, such as the intensity, frequency, and duration, is almost comparable with those of the studies conducted by Park et al., (2022) and Jung et al., (2020). Most importantly, Helgerud et al. (2007) designed a similar HIIT protocol, except for the altitude conditions added in our study. The individual responses and the HIIT protocol applied during the study significantly influenced vVO2 max adaptations.

Physiological parameters play crucial roles in running performance improvement. Hence, the 5,000 m running performance improved after HIIT at low and moderate altitudes. We found that the time to complete the running time decreased, which is an improvement in performance following HIIT at both low and moderate altitude. Similarly, Levine and Stray-Gundersen, (1997) reported a significant improvement in the 5,000 m running performance of the LHTL group with a 13.4±10 second decrease in running time. In contrast, the LHTH and LLTL groups presented longer (increased) running times. In addition, Stray-Gundersen et al., (2001) reported a 1.1% improvement in a 3 km trial following the LHTL approach. In contrast, Jung et al. (2020) and Park et al. (2022) reported that 3 km running time has no significant interaction effect but is significant across time in both groups.

Hence, the 5,000 m performance improvement is inversely associated with vVO_2 max and VO_2 max, which are good predictors of running performance, as expected. In some cases, without the VO_2 max change, there is an increase in the running performance of athletes (Jones, 1998). These findings indicate that moderate-altitude long-distance runners may benefit more from low-altitude high-intensity training. This may be the case for athletes with speed problems who pursue time improvement. In particular, high-altitude athletes struggle to manage high-intensity training at high altitudes. This limitation may lead to a corresponding performance plateau and thus may require a more advanced training approach for possible performance adaptations.

In general, both the physiological and running performance improved in both intervention groups, with the lower-altitude HIIT group advancing more than the other groups. These findings indicate that speed training at lower altitudes could provide substantial access to oxygen to help individuals perform at the highest potential. This highlights the importance of training intensity monitoring at different altitudes, which contributes to running velocity and oxygen utilization for improved running performance. The significant improvement in 5,000 m running performance under both experimental conditions indicates that physiological variables contribute to potential running efficiency. This training is widely recognized for its ability to yield benefits in a short time individually

and in combination with hypoxia. In particular, HIIT is relevant for endurance sports in already fit individuals (Larson and Jenkins, 2002).

These findings highlight the significant physiological and functional enhancement following HIIT at lower altitudes for endurance runners. This was also demonstrated in a crossover study on horses, where HIIT under hypoxic conditions improved training performance and VO_2 max (Mukai et al., 2020). In fact, running performance influencing factors such as physiological (Denadai & Greco, 2022), morphological (Knechtle et al., 2015), environmental and psychological (Ogueta-Alday & Garcia-Lopez, 2016) ones are prevalent, our findings support the premise that HIIT at low and moderate altitudes effectively improves running performance.

Previous findings suggest that incorporating HIIT under hypoxia is an efficient strategy that can significantly improve key physiological variables compared with HIIT under normoxia (Fentaw et al., 2025). In addition, living at high altitudes and HIIT at lower altitudes significantly improve athletic performance compared with sea-level living and training (Levine & Stray-Gundersen, 1997). These results agree with our findings despite methodological and population issues. The nature of HIIT is well known to utilize speed intervals that maintain training at the given intensity and duration. This shows that training at lower altitudes allows for greater training intensity due to reduced physiological stress in comparison with higher altitudes, which may have contributed to increased functional adaptations. However, the degree of improvement did not differed between the training groups, indicating comparable progress.

Consequently, the lower altitude HIIT group rendered greater vVO_2 max, VO_2 max and running performance than the moderate altitude HIIT group did. These improvements following lower altitude HIIT may suggest that these HIIT programs elicited greater impacts and stress on physiological factors. Nevertheless, our study participants were moderate-altitude resident distance runners, given that HIIT interventions were provided at their residences and brought to lower altitudes for high-intensity training for the other group. Such training taxes the physiological factors to a greater degree, suggesting the importance of providing HIIT at lower altitudes for moderate-altitude athletes.

This study also revealed that 5,000 m running time associations with VO_2 max and vVO_2 max are similar to the findings of Levine and Stray-Gundersen, (1997), and Neya et al. (2016), who reported a negative correlation between 5 km running performance and VO_2 max in the LHTL group ($r=0.65$, $p<0.00001$). However, the participants were sea-level athletes who were exposed to hypoxia, which led to acute physiological stress. In contrast to these studies, we included moderate-altitude endurance runners. Levine and Stray-Gundersen (1997) reported that a 5% increase in VO_2 max leads to a 13.4±10 s improvement at 5 km. In this study, 5,000 m time was significantly correlated with the VO_2

max (r =-0.7, p = 0.002) in the HIIT2850m group, accounting for 1.4% of the variance in 5 km performance. The effect of HIIT on athletic performance quality has been confirmed to be positive and significantly correlated with changes in performance. These changes may exist because, compared with HIIT at moderate altitudes, HIIT is best performed by moderate-altitude distance runners at lower altitudes. These findings suggest that maintaining HIIT at lower altitudes for moderate-altitude athletes is an effective approach for optimizing performance.

Limitations and Future Considerations

This study highlights the necessity of HIIT at low altitudes for high-altitude long-distance running athletes to achieve the best possible time goals. However, experimenting with two different altitudes is demanding because of the difficulty in terms of logistics and managing and controlling other psychological and physiological confounders during the intervention. Consequently, some methodological, population and logistical issues must be underscored. The time spent during transportation from/to lower altitudes may have influenced the results. In particular, the effects of nutritional and recovery time complications during transportation to/from residences and training sites were not evaluated. However, the participants were encouraged to maintain their usual habits as much as possible, and we tried to provide food and water immediately after the intervention sessions to minimize the influences associated with them. Hence, convenient lower-altitude residences minimize the influence, which helps to efficiently perform HIIT after full recovery, which we recommend for future studies. In addition, simulated sea levels may be utilized at high altitudes, which may have benefits and should be considered. Blinding was not performed on either the participants or the researchers in the experimental conditions. However, we encouraged participants during training and testing and informed them about the purpose and procedures of the study to mitigate these limitations.

The optimal training at low altitudes and the immediate effect and durability of the obtained benefits warrant future study. We sought results as a group; however, training, competition experience and performance levels may create intersubject variability in improvements. Therefore, determining the dose–response relationships of individuals is an area for further research.

Although the study examined some selected physiological changes through an indirect means of value estimation which are reliable and valid, we acknowledge that they may not have been sensitive enough to detect changes. Therefore, more rigorous research is needed that utilizes direct laboratory tools. In summary, these limitations do not mean that our results are in trouble; instead, we refer to the existing possibilities that may affect the findings. Hence, future studies should aim to create more favourable conditions that could yield more reliable and optimal results.

Conclusion

This study demonstrated that eight weeks of high-intensity interval training led to significant improvements in the physiological and functional parameters of endurance athletes, regardless of the training site, compared with the control group. Consistent with our hypothesis, HIIT performed at lower altitudes produced greater 5,000 m time improvements than HIIT conducted at moderate altitudes, indicating superior functional adaptation. These findings confirm that proper caution should be taken during HIIT at high altitudes, which influences the magnitude of induced gains. In particular, understanding the influence of high altitudes on individual athlete physiological responses is necessary for designing and monitoring training intensity plans. Planning HIIT at lower altitudes for moderate-altitude resident athletes may serve as an effective strategy to optimize aerobic capacity and endurance performance, which could lead to potential recommendations for long-distance athletes and coaches.

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STATEMENT OF ETHICS

This study was conducted in accordance with the World Medical Association Declaration of Helsinki. The study protocol was reviewed and approved by the Sport Academy ethical committee at Bahir Dar University (APPROVAL NUMBER; IRERC 06/2024, Bahir Dar, Ethiopia). All participants provided written informed consent to participate in this study.

DECLARATION OF CONFLICTING INTERESTS

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AUTHORS' CONTRIBUTIONS

Sisay Fentaw: Conceptualization, Methodology, Software, Formal analysis, Investigation, Resources, Data curation, Writing - Original Draft, Review and Editing, Visualization, Funding acquisition.
Tefera Tadesse: Methodology, Software, Validation, Investigation, Writing - Review & Editing, Visualization, Supervision, Project administration.
Zerihun Birhanu: Methodology, Investigation, Validation, Writing - Review and Editing, Visualization, Supervision, Project administration. All authors approved the final version of the manuscript.

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THE DIFFERENTIATED TRAINING AND ITS IMPACT ON THE FUNCTIONAL STATE OF THE CARDIOVASCULAR SYSTEM AND THE LEVEL OF ENDURANCE DEVELOPMENT OF 13–15-YEAR-OLD PUPILS

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Zróżnicowany trening i jego wpływ na stan funkcjonalny układu sercowo-naczyniowego oraz poziom rozwoju wytrzymałości u uczniów w wieku 13–15 lat

Streszczenie

Zastosowanie zróżnicowanego treningu w procesie wychowania fizycznego w celu poprawy stanu funkcjonalnego młodzieży szkolnej jest istotnym zagadnieniem. Badano skuteczność zasto-

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sowania zróżnicowanego treningu na lekcjach wychowania fizycznego, uwzględniając wskaźniki funkcjonalnego stanu układu sercowo-naczyniowego oraz poziom rozwoju wytrzymałości uczniów w wieku 13–15 lat. Przebadano 226 uczniów w wieku 13–15 lat (107 chłopców i 119 dziewcząt). Utworzono trzy grupy eksperymentalne i trzy grupy kontrolne. Na początku badania stwierdzono: niżej niż przeciętny poziom regulacji układu sercowo-naczyniowego; przeciętny poziom reakcji układu sercowo-naczyniowego na standardowe obciążenie fizyczne; niski poziom rozwoju wytrzymałości u uczniów w wieku 13–15 lat. Po wdrożeniu systemu ćwiczeń opartych na zróżnicowanym treningu, ukierunkowanych na podniesienie poziomu przygotowania funkcjonalnego, zaobserwowano pozytywne zmiany wskaźników układu sercowo-naczyniowego (p<0,05–0,001) oraz istotny statystycznie wzrost wyników rozwoju wytrzymałości w grupach eksperymentalnych (p<0,001). W grupach kontrolnych nie odnotowano istotnych zmian we wszystkich badanych parametrach (p>0,05). W rezultacie stan funkcjonalny układu sercowo-naczyniowego wzrósł z poziomu poniżej przeciętnego do przeciętnego, a poziom rozwoju wytrzymałości – z niskiego do poniżej przeciętnego w grupach eksperymentalnych.

Słowa kluczowe: zróżnicowanie, zdrowie, sprawność fizyczna, lekcje.

Abstract

The application of differentiated instruction in physical education to improve the functional state of school-aged youth is a relevant issue. This study investigated the effectiveness of using differentiated instruction in physical education classes, taking into account indicators of the cardiovascular system's functional state and the endurance level of students aged 13–15. A total of 226 students aged 13–15 (107 boys and 119 girls) were examined. Three experimental and three control groups were formed. The baseline assessment revealed a below-average level of cardiovascular regulation, an average response level of the cardiovascular system to standard physical load, and a low level of endurance development among 13–15-year-old students. Following the implementation of a system of differentiated instruction exercises aimed at improving functional readiness, positive changes in cardiovascular system indicators were observed (p<0.05–0.001), along with a statistically significant improvement in endurance development results in the experimental groups (p<0.001). In the control groups, no significant changes were found in any of the studied parameters (p>0.05). As a result, the functional state of the cardiovascular system improved from below average to average, and the level of endurance development increased from low to below average in the experimental groups.

Keywords: differentiation, health, physical fitness, lessons.

Introduction

The economic, social and spiritual development of any country and Ukraine in particular, is impossible without a healthy nation. Health is the main value of a person, a healthy population is the value of the state, and a healthy younger generation is an investment now and a prospect for the development of the state in the future. However, research findings (Bala & Masliak, 2011; Bala, 2012; Azhippo et al., 2016; Maslyak, et al., 2016; Mameshyna, 2016; Platonova, A, Podrigalo, L, et al., 2018) show that the health of the younger generation is deteriorating significantly, especially among school-age children. It has been

found that 80% of pupils have various diseases, 60% have a low level of physical development, and only 20% of children are practically healthy (Moskalenko & Yelisieieva, 2016; Kryvoruchko & Masliak, 2016; Bala et al., 2017; Petrova & Bala, 2020). This situation, according to the authors, is directly related to insufficient physical activity, which results in a decrease in the functional state of the body's major systems, the level of development of physical qualities, and deterioration of health (Platonova, Podrigalo, & Sokol, 2013).

Physical education is the main and effective factor in compensating for the lack of physical activity. At the same time, Krutsevych et al. (2016); Kolumbet & Dudorova (2016); Moskalenko et al. (2019) point out that standard content, generally accepted methods, and template forms of physical education in educational institutions do not provide the necessary health-improving effect.

Therefore, representatives of the science and practice of physical education are looking for new innovative ways to solve this problem. Thus, to improve the effectiveness of physical education of pupils, Maslyak, et al., 2016, proposes the introduction of a set of special exercises aimed at improving the functional state of the vestibular analyzer; Alexandr Aghyppo, et al., 2018, to improve the functions of the motor analyzer; Tetiana Bala, et al., 2018, cheerleading exercises; Marchenko & Taranenko, 2020, basic elements of Kyokushinkai karate. It should be noted that a differentiated approach remains one of the most relevant areas for improving the effectiveness of physical education. According to experts, a differentiated approach makes it possible to take into account not only the gender and age of the child, but also other informative indicators (Bodnar & Stefanyshyn, 2016; Bondarchuk, 2016).

The analysis of scientific and methodological literature has revealed a number of studies on this issue. For example, a differentiated approach to the physical health of children with different somatotypes is advocated by Delbani Hassan, 2014; Mysiv et al., 2016, taking into account the constitutional identification of primary pupils in Lebanon. Differentiated teaching of 13–15-year-old pupils taking into account physical health is advocated by Masliak & Mameshyna, 2018; differentiation of the content of physical education classes taking into account the indicators of physical fitness of pupils - Mameshyna, 2020.

However, the issue of application of differentiated training in physical education lessons taking into account indicators of functional state of cardiovascular system and level of endurance development of 13–15-year-old pupils remains unexplored.

In our view, the modernization of physical education lessons through the application of differentiated instruction—based on grouping students into homogeneous subgroups according to their identified individual characteristics significant to the learning process—and the supplementation of the variable section of the curriculum with functional training exercises will contribute to im-

proving the functioning of the cardiovascular system and increasing the level of endurance development in adolescents.

This assumption determined the purpose of the research - to test experimentally the effectiveness of differentiated training in physical education lessons, taking into account the indicators of the functional state of the cardiovascular system and the level of endurance development of 13–15-year-old pupils.

Methods

Participants. The study was conducted at General Secondary Education Institution No. 150 in Kharkiv, Ukraine. A total of 226 pupils aged 13–15 years took part in the research (107 boys and 119 girls). Three experimental groups and three control groups were formed.

The study involved pupils from both the main and preparatory medical groups. All participants were in generally good health and were under regular supervision by the school physician. Written informed consent for participation was obtained from the pupils' parents.

Study Design. The research methodology included theoretical analysis and synthesis of scientific and methodological literature, biomedical methods (heart rate and blood pressure monitoring), a pedagogical experiment (comprising ascertaining and formative stages), and methods of mathematical statistics.

Assessment Tools. The functional potential of the cardiovascular system was assessed using the Robinson Index, which reflects the regulatory efficiency of the cardiovascular system, and the Ruffier Index, which evaluates tolerance to standardized physical load. To calculate these indices, heart rate (HR) at rest and after a standard load (30 squats in 45 seconds), as well as arterial blood pressure (BP), were measured. The Robinson Index was calculated as follows: HR (beats/min) × systolic BP (mmHg) / 100. The Ruffier Index was calculated using the formula: $[4 \times (P_1 + P_2 + P_3) - 200] / 10$. Where P_1 is the heart rate for 15 seconds at rest, P_2 is the heart rate during the first 15 seconds of recovery after the load, and P_3 is the heart rate during the last 15 seconds of the first recovery minute. The constants 4, 200, and 10 are fixed values in the formula.

The obtained results were compared against evaluation tables developed by Mameshyna and Masliak (2020), which provided point-based assessments.

Physical Fitness Assessment. The level of general endurance development among the pupils was determined using the standard motor test "Jumping out from a squatting position with deflection" (maximum number of repetitions), which has a reliability coefficient greater than 0.6.

Testing Procedure. The test began from the initial position: the participant assumed a squatting stance with feet slightly apart and fingertips touching the

ground or floor. At the signal, the pupil performed consecutive vertical jumps using both legs. In the final phase of the jump, the torso had to extend into a backward arch, with arms swinging upward to accompany the movement. After landing, the pupil returned to the initial position. The jumps were performed continuously, without pauses. *Outcome measure:* the result was defined as the maximum number of correctly performed repetitions. The data were evaluated using a point-based scale developed by Serhienko (2010).

Study Stages. The research was conducted over several phases throughout the academic year.

At the first stage, a diagnostic (ascertaining) experiment was carried out to assess the baseline condition of the cardiovascular system and the level of endurance development in the participating pupils. No statistically significant differences were found between the experimental and control groups at this stage.

Based on the results of the ascertaining experiment, the pupils in the experimental groups were further divided into homogeneous subgroups, taking into account individual characteristics relevant to the educational process.

The pupils who received low scores (1–2 points) for the Robinson and Ruffier indices—indicating insufficient functional capacity of the cardiovascular system—were assigned to *subgroup A*. The pupils with low scores (1–2 points) for the Skibinski index—indicating limited respiratory system function—were assigned to *subgroup B*. The pupils who demonstrated poor development of speed and strength were placed in *subgroup C*, while those with low scores in coordination and flexibility were assigned to *subgroup D*. The pupils with reduced endurance were generally included in subgroup A, with priority given to the lower of the two cardiovascular indices (Robinson or Ruffier).

To enable differentiated instruction, the physical education curriculum was divided into two components—*core* and *optional* (Figure 1).

The *core component* included mandatory motor activities such as technical-tactical exercises from basic sports (basketball, volleyball, football, athletics), as well as general physical training exercises.

The *optional component* was differentiated based on the pupils' individual typological characteristics and was structured into two blocks: the first focused on *functional training*, while the second addressed *physical conditioning*.

Each homogeneous subgroup received a tailored system of differentiated exercises aimed at enhancing the functional state of major physiological systems and improving the development of physical qualities.

At the second stage, the developed differentiated training program was implemented into the physical education curriculum for the pupils in the experimental groups.

Lesson Structure and Implementation. The structure of the physical education lesson was standard, while the implementation of the developed instruc-

tional content and pupil organization followed a customized authorial framework. The *preparatory part of the lesson* lasted 10 minutes and included exercises aimed at preparing the body for the main workload (drill exercises, various types of walking and running, general developmental exercises).

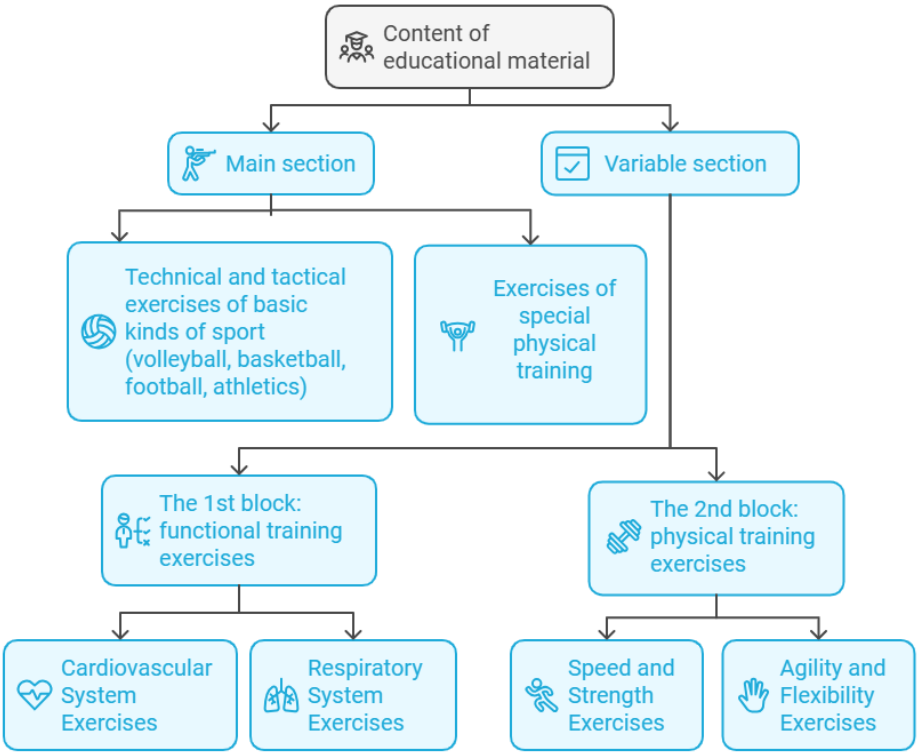

Figure 1
Content of educational material for differentiated learning in physical education lessons

During the first 15 minutes of the *main part of the lesson*, the pupils in the experimental groups practiced technical elements of the selected sports modules—basketball, volleyball, football, and athletics. After this initial activity, the pupils were divided into four previously formed typological subgroups (A, B, C, D). Each subgroup received printed instructional materials, i.e., each pupil was given an individual task card listing exercises, methodological guidance, and dosage recommendations.

During the subsequent 15 minutes, the pupils in *subgroup A* performed exercises designed to enhance the functional state of the cardiovascular system. The physical exercise program included basic cardio elements from CrossFit training, such as *burpees* (transition from standing to prone position and back), *walking lunges*, single, double, and triple rope jumps, as well as aerobic exer-

cises like brisk walking and fast-paced running. The intensity was gradually increased, not exceeding 60–80% of maximum effort, with a peak heart rate not surpassing 170–180 beats per minute.

The pupils in *subgroup B* focused on exercises aimed at improving the respiratory system. These included intercostal and diaphragmatic strengthening exercises, as well as exercises involving forced inhalation and exhalation.

The pupils in *subgroup C* performed exercises focused on the development of speed (e.g., tempo-varied runs, running between markers) and strength (e.g., resistance exercises, pull-ups, speed-strength combinations).

The pupils in *subgroup D* engaged in exercises designed to improve coordination (e.g., turns of 90°, 180°, and 360°; balance exercises on limited surfaces; rhythmic exercises to music) and flexibility (e.g., springy bends from various positions, leg swings, half-splits, etc.).

The final part of the lesson focused on recovery, incorporating calming activities such as slow walking, breathing, and attention exercises. Each pupil was assigned a differentiated home task based on their individual abilities. This segment lasted 5 minutes.

The content of physical education lessons in the control groups was oriented toward achieving objectives related to technical and specialized physical training within the selected sports modules (volleyball, basketball, football, athletics), and instructional conditions followed a typical organizational model.

Formative Stage. At the third stage, a formative comparative pedagogical experiment was conducted to assess the effectiveness of the author's instructional design. The study focused on evaluating changes in the cardiovascular functional state and endurance levels of 13–15-year-old pupils.

Statistical Analysis

The research data were processed using SPSS software (version 25.0). For each measurement, the mean value and standard error were calculated. The normality of data distribution was assessed using the Kolmogorov–Smirnov test. To determine differences between groups, analysis of variance (ANOVA) was applied. The level of statistical significance was set at $p<0.05$.

Results

The analysis of baseline results revealed no statistically significant differences between the experimental and control groups across all studied parameters ($p>0.05$).

A comparison of the mean Robinson index values among 13–15-year-old pupils with reference evaluation tables prior to the experiment indicated a below-

average level (2 points) of cardiovascular system regulation. Similarly, based on the Ruffier index results and their comparison with standard evaluation tables, the pupils demonstrated an average level (3 points) of cardiovascular response to standard physical load.

Assessment of the standing broad jump with arching, compared to normative scales, showed a low level (1 point) of endurance development among the 13–15-year-old pupils.

Following the implementation of the developed system of differentiated physical exercises (Tab. 1 and 2), analysis of the post-intervention data characterizing the functional state of the cardiovascular system (Robinson index) demonstrated improvements in blood pressure and heart rate values among the pupils in the experimental groups. These differences were statistically significant (p<0.01–0.001).

Table 1

Cardiovascular system indicators of the boys in the experimental and control groups before and after the experiment

Indicators		Group	Before the experiment	After the experiment	ANOVA	
			X±SE	X±SE	t	p
13 years old (n=18) **(**n=10)						
Heart rate (bpm^{-1})		E	83.11±2.99	75.17±0,95	3.87	<0.01
		C	80.70±2.68	80.50±2.41	0.33	>0.05
Arterial systolic pressure (mm Hg)		E	113.28±2.24	103.33±1.93	9.91	<0.001
		C	116.80±4.08	115.40±3.98	1.90	>0.05
Arterial diastolic pressure (mm Hg)		E	73.83±1.76	68.06±1.35	5.77	<0.001
		C	77.40±2.39	76.90±1.97	1.07	>0.05
Heart rate per 15 seconds (number of times)	P_1	E	16.00±0.61	16.33±0.54	1.52	>0.05
		C	15.30±0.50	15.10±0.51	1.21	>0.05
	P_2	E	27.89±1.12	29.94±0.57	3.08	<0.05
		C	24.70±1.33	25.50±1.09	2.22	>0.05
	P_3	E	17.89±0.72	18.28±0.51	1.18	>0.05
		C	17.10±0.69	17.00±0.54	0.25	>0.05
14 years old (n=29) (n=16)						
Heart rate (bpm^{-1})		E	88.00±3.10	76.14±1.06	5.08	<0.001
		C	84.81±4.90	84.19±3.28	0.35	>0.05
Arterial systolic pressure (mm Hg)		E	120.38±2.16	102.34±1.24	11.98	<0.001
		C	124.81±1.22	123.75±1.21	2.00	>0.05
Arterial diastolic pressure (mm Hg)		E	77.07±1.71	68.76±0.68	6.59	<0.001
		C	80.13±1.23	78.00±0.75	1.79	>0.05

Table 1
Cardiovascular system indicators of the boys… (cont.)

Indicators		Group	Before the experiment	After the experiment	ANOVA	
			X±SE	X±SE	t	p
14 years old (n=29) (n=16)						
Heart rate per 15 seconds (number of times)	P_1	E	20.86±1.13	18.28±0.30	3.21	<0.01
		C	18.00±0.93	18.06±0.92	0.10	>0.05
	P_2	E	31.93±1.16	32.76±0.53	1.59	>0.05
		C	30.81±1.11	32.19±1.50	1.01	>0.05
	P_3	E	25.03±1.27	20.86±0.32	6.34	<0.001
		C	22.00±0.98	20.63±0.86	1.76	>0.05
15 years old (n=19) (n=14)						
Heart rate (bpm^{-1})		E	86.37±1.64	76.79±0.68	8.61	<0.001
		C	85.14±4.07	84.29±3.90	1.60	>0.05
Arterial systolic pressure (mm Hg)		E	124.26±2.38	109.37±1.68	9.43	<0.001
		C	129.71±3.30	129.50±3.30	1.83	>0.05
Arterial diastolic pressure (mm Hg)		E	82.05±1.78	71.05±0.82	7.77	<0.001
		C	78.00±1.23	77.29±0.94	1.60	>0.05
Heart rate per 15 seconds (number of times)	P_1	E	22.84±1.10	19.47±0.76	7.32	<0.001
		C	19.79±1.04	20.29±0.94	1.41	>0.05
	P_2	E	33.42±1.37	32.00±0.68	2.95	<0.05
		C	30.50±2.20	31.71±1.68	1.60	>0.05
	P_3	E	25.58±1.01	21.74±0.77	5.57	<0.001
		C	22.36±1.39	23.07±1.03	1.61	>0.05

Abbreviations: E – Experimental group; C – Control group; P_1 – Heart rate over 15 seconds at rest; P_2 – Heart rate during the first 15 seconds of the recovery period after physical activity; P_3 – Heart rate during the last 15 seconds of the first minute of recovery; X – Arithmetic mean; SE – Standard error of the mean; *t* – Student's t-test value; *p* – Level of statistical significance.

A repeated comparison of the Robinson index with the evaluation scale showed that the scores increased by 1 point, reaching a value of 3. As a result, the level of cardiovascular system regulation among the pupils in the experimental groups improved from below average to average.

A similar analysis of the control group data (Tab. 1 and 2) revealed no significant changes ($p>0.05$), and therefore, the level of cardiovascular regulation in these groups remained below average.

A repeated analysis of the Ruffier index data, which characterizes the cardiovascular system's response to standard physical exertion (Tab. 1 and 2), demonstrated, for the most part, statistically significant improvements in the studied parameters among the pupils in the experimental groups ($p<0.05$–0.001).

Table 2

Cardiovascular system indicators of the girls in the experimental and control groups before and after the experiment

Indicators		Group	Before the experiment	After the experiment	ANOVA	
			X±SE	X±SE	t	p
13 years old (n=33) (n=17)						
Heart rate (bpm^{-1})		E	81.55±2.43	76.15±1.08	4.00	<0.01
		C	87.94±2.62	87.59±2.63	1.88	>0.05
Arterial systolic pressure (mm Hg)		E	115.42±1.96	101.55±1.14	9.97	<0.001
		C	120.71±2.80	120.53±2.80	1.85	>0.05
Arterial diastolic pressure (mm Hg)		E	75.42±1.24	66.42±1.10	7.97	<0.001
		C	77.82±1.70	78.00±1.75	0.47	>0.05
Heart rate per 15 seconds (number of times)	R_1	E	15.36±0.45	16.55±0.49	2.42	<0.05
		C	15.76±0.42	16.00±0.34	1.35	>0.05
	R_2	E	27.15±0.68	30.33±0.68	5.73	<0.001
		C	29.71±1.54	30.94±0.87	2.01	>0.05
	R_3	E	17.79±0.51	18.79±0.57	1.91	>0.05
		C	18.76±0.26	18.47±0.35	1.82	>0.05
14 years old (n=23) (n=12)						
Heart rate (bpm^{-1})		E	90.91±3.50	76.48±1.15	5.62	<0.001
		C	88.08±2.69	87.83±2.66	1.83	>0.05
Arterial systolic pressure (mm Hg)		E	122.22±2.03	104.26±1.37	12.83	<0.001
		C	121.83±3.62	121.17±3.51	2.06	>0.05
Arterial diastolic pressure (mm Hg)		E	77.70±14.5	68.83±0.73	8.44	<0.001
		C	79.58±4.08	76.42±1.48	1.13	>0.05
Heart rate per 15 seconds (number of times)	R_1	E	18.09±0.79	17.26±0.32	2.00	>0.05
		C	19.17±1.27	20.33±1.38	1.15	>0.05
	R_2	E	30.78±1.27	32.43±0.54	2.36	<0.05
		C	32.83±0.99	34.25±2.09	1.04	>0.05
	R_3	E	21.61±1.07	19.61±0.32	3.09	<0.01
		C	24.50±1.12	23.92±1.24	0.60	>0.05
15 years old (n=23) (n=12)						
Heart rate (bpm^{-1})		E	86.30±4.22	76.43±1.27	3.63	<0.01
		C	84.50±3.52	84.25±3.50	1.91	>0.05
Arterial systolic pressure (mm Hg)		E	121.13±2.52	106.30±1.63	10.99	<0.001
		C	124.08±3.94	119.42±2.38	2.13	>0.05
Arterial diastolic pressure (mm Hg)		E	80.57±1.81	70.13±0.99	8.77	<0.001
		C	83.50±2.14	81.00±2.08	2.01	>0.05

Table 2
Cardiovascular system indicators of the girls… (cont.)

Indicators		Group	Before the experiment	After the experiment	ANOVA	
			X±SE	X±SE	t	p
15 years old (n=23) (n=12)						
Heart rate per 15 seconds (number of times)	R_1	E	18.30±1.10	17.26±0.54	2.10	<0.05
		C	16.50±1.45	17.50±0.69	1.62	>0.05
	R_2	E	29.83±1.46	30.00±0.60	0.25	>0.05
		C	29.42±2.66	31.83±1.95	1.86	>0.05
	R_3	E	23.22±0.84	19.48±0.57	7.54	<0.001
		C	21.08±1.20	22.50±1.16	1.74	>0.05

Abbreviations: E – Experimental group; C – Control group; R_1 – Heart rate over 15 seconds at rest; R_2 – Heart rate during the first 15 seconds of the recovery period after physical activity; R_3 – Heart rate during the last 15 seconds of the first minute of recovery; X – Arithmetic mean; SE – Standard error of the mean; *t* – Student's t-test value; *p* – Level of statistical significance.

The exceptions are indicators of resting heart rate for 15 s (P_1) of the boys aged 13 and the girls aged 14; heart rate for the first 15 s of the period of recovery after exercise (P_2) of the boys aged 14 and the girls aged 15; heart rate for the last 15 s of the first minute of recovery (P_3) of the pupils aged 13, where the differences are insignificant ($p>0.05$). Insignificant changes were found in the results of control group the pupils after the experiment ($p>0.05$).

After comparing the Ruffier index data obtained after the pedagogical experiment with the evaluation tables, we found that the results of the girls aged 14 and the boys aged 15 increased by 1 point and began to correspond to a score of 4 and 3 points, respectively.

At the same time, the positive improvement in the scores of the pupils aged 13, the boys aged 14 and the girls aged 15 did not affect significantly the number of points. Thus, during the experiment, the level of cardiovascular system response to standard physical activity increased from average to above average in the girls aged 14, and from below average to average in the boys aged 15. In the pupils aged 13, the boys aged 14 and the girls aged 15, the indicators improved, but their level did not change.

A similar comparison of the data of control group the pupils shows that the slight improvement in results did not affect the level of cardiovascular system response to standard physical activity for the most part. The only exceptions are the results of the girls aged 14 and the boys aged 15 (the girls' level increased from below average (2 points) to average (3 points), the boys' level decreased from average (3 points) to below average (2 points).

A comparison of the post-experimental data characterizing the functional state of the cardiovascular system in the experimental and control groups revealed that the heart rate and blood pressure indicators of the experimental group the pupils were statistically significantly better than those of the control group (p<0.05–0.001).

The analysis of repeated measurements assessing the cardiovascular system's response to standard physical activity showed no statistically significant differences between the experimental and control groups (p>0.05).

However, significant differences (p<0.05–0.001) were observed in: the 15--second resting heart rate (P_1) in 14-year-old girls; the heart rate during the first 15 seconds of recovery (P_2) in 13-year-old boys; the heart rate during the last 15 seconds of the first minute of recovery (P_3) in 14–15-year-old girls.

Analysis of the data obtained after the implementation of the differentiated physical exercise program confirmed a statistically significant improvement in endurance performance among 13–15-year-old pupils in the experimental groups (p<0.001).

Thus, the results increased by 6.39 units for the boys aged 13, which is a percentage of (59.07%); 14 years old – by 2.76 (16.64%); 15 years old – by 5.00 (25.43%). The results improved by 4.45 units for the girls aged 13, which is a percentage of (39.90%); 14 years old – by 2.96 (22.67%); 15 years old - by 3.83 (29.01%).

The analysis of repeated indicators of the pupils of control groups shows their insignificant changes (p>0.05). Thus, the results of the boys aged 13 years increased by 0.30 units, which is (2.15%); 14 years – by 0.63 (4.11%); 15 years - by 0.21 (1.10%); the girls – by 0.18 (1.83%); 0.17 (1.16%); 0.25 (1.50%) respectively.

Having compared the repeated data of the performance of jumps with deflection with normative estimates, we found that the indicators of general endurance of the studied contingent increased by 1 point. Thus, the results of the boys aged 13 and 15 began to correspond to the score of 2 points (below average level), the girls aged 13, 15 and the boys aged 14 – to the score of 3 points (average level). The identified significant improvements in the results of the girls aged 14 did not significantly affect the score, and it did not change – 2 points (below average).

The analysis of repeated endurance indicators in the control groups revealed no statistically significant changes (p>0.05). As a result, the level of endurance development among 13–15-year-old pupils in the control groups remained at the baseline level – low (1 point).

By the end of the experiment, the endurance results of the pupils in the experimental groups were found to be statistically significantly higher than those of the control groups in most cases (p<0.01; 0.001). Exceptions included 13-year-old boys and 14-year-old pupils, for whom no statistically significant differences were observed (p>0.05).

Thus, the statistically confirmed positive changes in the studied indicators support the effectiveness of the proposed model of differentiated instruction in physical education classes, which takes into account the individual characteristics of the pupils that are relevant to the learning process.

Discussion

The analysis of the data characterizing the functional state of the cardiovascular system obtained after the pedagogical experiment revealed statistically significant improvements in the indicators of the pupils in the experimental groups (p<0.05–0.001). Additionally, a tendency towards reduced blood pressure and heart rate was observed in the study cohort. This indicates that the implementation of specially designed sets of physical exercises for differentiated instruction, taking into account the individual typological characteristics of the pupils, contributed to the development of adaptive mechanisms in the cardiovascular system of the experimental group.

Our findings are consistent with those of other researchers. Positive effects on the cardiovascular system in schoolchildren were reported by Filenko et al. (2013) in rugby-5 sessions; Bala (2012) and Maslyak and Krivoruchko (2016) in cheerleading exercises; Mulyk and Grynova (2015) in walking training; Petrova and Bala (2020) in the variable CROSSFIT module; Petrova et al. (2022) in CrossFit classes; Tsybulska et al. (2024) in health aerobics; and Kyrychenko (2025) in athletic gymnastics.

The comparison of repeated results of the pupils of the control groups did not reveal significant changes in the studied parameters (p>0.05). Thus, our results confirm the effectiveness of differentiated training in physical education lessons for 13–15-year-old pupils.

In the course of the experiment we found a positive dynamics of improvement of the results of the level of endurance development of the studied contingent (p<0.001). The obtained data are consistent with the results of the studies by Skaliy, et al. (2023); Vahitov & Martyanov (2010); Bala et al. (2018), etc. The authors found that under the influence of aerobic exercise, morphological and functional changes occur in the cardiovascular system, on which the manifestation of endurance depends. Our data complement the results of studies by Borisova & Shkarupylo (2017), on the positive impact of capoeira training on the level of endurance development of 15-16-year-old pupils; Dzhangobekov, Vovkanych & Muzyka (2014), on badminton, running and sports dancing; Osipova et al. (2016), on strength cardio training; Mameshina, Masliak & Cherendichenko (2024) – additional support for these findings is provided by studies examining various types of motor activity; Bazilevich et al. (2025) – athletic training methods; Kuzmenko et al. (2025) – ultimate frisbee exercises, among others.

For the first time the author's model of organization of differentiated training at physical education lessons is substantiated, taking into account the indicators of the functional state of the cardiovascular system of 13–15-year-old pupils and, as a result, increasing the level of endurance development of the studied contingent.

Conclusions

The review of the scientific works devoted to the study of this issue revealed a significant number of developments, and as for the criteria for differentiation of physical education, in order to improve physical health and motor fitness of different age groups, it is proposed to take into account not only age and gender, but also body structure, somatotypes, somatic health and indicators of physical qualities development, etc. However, the problem of differentiation of training taking into account the functional state of the cardiovascular system and the level of endurance development of adolescents aged 13–15 years was not raised.

In order to improve the adaptive mechanisms of the cardiovascular system and increase the level of endurance development of 13–15-year-old pupils, the author's model of organizing differentiated training in physical education lessons is proposed; it is recommended to supplement the content of the variable section of the curriculum with physical exercises specifically aimed at increasing the level of functional fitness; differentiated homework is proposed, taking into account the identified individual capabilities of pupils.

Positive changes in the indicators of the functional state of the cardiovascular system (from below average to average) and an increase in the level of endurance development (from low to below average) of 13–15-year-old pupils testify to the effectiveness of the author's development.

To assess the effectiveness of the proposed innovations, it is recommended to implement ongoing, stage-based, and final monitoring. When evaluating students' academic achievements, individual progress should be taken into account, and additional points should be added to the final grade for improvements in the functional state of the main body systems and the level of physical fitness development.

STATEMENT OF ETHICS

This study was conducted in accordance with the World Medical Association Declaration of Helsinki. The study protocol was reviewed and approved by the Ethics Committee of Kharkiv State Academy of Physical Culture (approval number: 2024-11, Kharkiv, Ukraine). All participants provided written informed consent to participate in this study.

DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interests with respect to the research, authorship, and/or publication of the article *The differentiated training and its impact on the functional state of the cardiovascular system and the level of endurance development of 13–15-year-old pupils.*

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AUTHORS' CONTRIBUTIONS

Marharyta Mameshyna: Conceptualization, Methodology, Formal analysis, Investigation, Writing - Original Draft, Writing - Review and Editing, Project administration;
Iryna Masliak: Conceptualization, Methodology, Supervision;
Oleh Olkhovyi: Resources, Supervision;
Iryna Kuzmenko: Investigation, Data Curation, Validation;
Tetiana Bala: Investigation, Resources, Data Curation;
Natalia Bykhun: Investigation, Validation, Writing - Review and Editing;
Viacheslav Zhuk: Visualization, Writing - Review and Editing, Formal analysis.

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Część III

TURYSTYKA I REKREACJA

SPORT I TURYSTYKA
Środkowoeuropejskie Czasopismo Naukowe

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DIGITALIZED DONATION TOURISM: A CATALYST FOR RURAL RESILIENCE AND SUSTAINABLE DEVELOPMENT IN POST-WAR UKRAINE

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Cyfrowa turystyka donacyjna: katalizator odporności obszarów wiejskich i zrównoważonego rozwoju w powojennej Ukrainie

Streszczenie

W kontekście wojny na Ukrainie, badanie odporności społeczności wiejskich staje się ważne. Niniejsze badanie analizuje rolę zrównoważonego marketingu w promowaniu zdygitalizowanej turystyki donacyjnej w celu wzmocnienia odporności obszarów wiejskich i zrównoważonego rozwoju w powojennej Ukrainie. Pomimo rosnącego potencjału dygitalizacji i turystyki opartej na donacjach, aspekty te pozostają niedostatecznie zbadane, szczególnie w regionach dotkniętych wojną. Niniejsze badanie ma na celu ocenę, w jaki sposób strategiczny marketing zdygitalizowanej turystyki donacyjnej może wpłynąć na odporność obszarów wiejskich w Ukrainie. Badanie wykorzystuje analizę klastrów i statystyczną ocenę wskaźników odporności społeczności wiejskich. Dane

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zbierano za pośrednictwem platform i aplikacji internetowych, a także analizy oprogramowania do zarządzania gościnnością ze strony internetowej Capterra. Badania wykazały korelację między poziomem dygitalizacji a odpornością społeczności wiejskich. Wdrożenie technologii cyfrowych zwiększyło aktywność gospodarczą o 20–25% i poprawiło spójność społeczną o 10%. Turystyka oparta na donacjach przyczyniła się do 30% wzrostu dochodów i wzmocniła lokalną gospodarkę. Wyniki potwierdzają, że dygitalizacja i turystyka oparta na darowiznach są kluczowymi czynnikami odporności społeczności wiejskich w czasie wojny. Zaleca się, aby inwestycje w infrastrukturę cyfrową i inicjatywy kierowane przez społeczność były priorytetem w celu zwiększenia odporności. Współpraca międzynarodowa jest również kluczowa we wspieraniu społeczności wiejskich w Ukrainie.

Słowa kluczowe: zrównoważony marketing, cyfrowa turystyka donacyjna, odporność obszarów wiejskich, rozwój pokonfliktowy, turystyka strategiczna.

Abstract

In the context of the war in Ukraine, researching the resilience of rural communities becomes essential. This study examines the role of sustainable marketing in promoting digitalized donation tourism to bolster rural resilience and sustainable development in post-war Ukraine. Despite the growing potential of digitalization and donation-based tourism, these aspects remain underexplored, particularly in regions affected by war. This research aims to assess how the strategic marketing of digitalized donation tourism can influence the resilience of rural areas in Ukraine. The study employs cluster analysis and statistical evaluation of resilience indices of rural communities. Data was collected through online platforms and applications, and an analysis of hospitality management software from the Capterra website. The research demonstrated a correlation between the digitalization level and rural communities' resilience. Implementing digital technologies increased economic activity by 20-25% and enhanced social cohesion by 10%. Donation-based tourism contributed to a 30% increase in income and strengthened the local economy. The results confirm that digitalization and donation-based tourism are key factors in the resilience of rural communities during wartime. It is recommended that investment in digital infrastructure and community-led initiatives be prioritized to enhance resilience. International cooperation is also crucial in supporting rural communities in Ukraine.

Key words: sustainable marketing, digitalized donation tourism, rural resilience, post-conflict development, strategic tourism.

Introduction.

The war in Ukraine has had a devastating impact on rural communities, causing significant disruptions to livelihoods and infrastructure. Traditional tourism models are no longer viable in many regions, necessitating innovative approaches to support rural economies and preserve cultural heritage. This study examines the role of strategic sustainable marketing in promoting digitalized donation tourism to bolster rural resilience and sustainable development in post-conflict Ukraine.

Despite the growing potential of digitalization and donation-based tourism, these aspects remain underexplored, particularly in regions affected by war. The

primary objective of this research is to assess how the strategic marketing of digitalized donation tourism can influence the resilience of rural areas in Ukraine during the military conflict.

The study employs a mixed-methods approach, combining qualitative and quantitative research techniques. In-depth interviews with tourism stakeholders, local communities, and potential donors were conducted to gather insights into the needs and preferences of various stakeholders. Additionally, a quantitative survey was administered to measure the potential impact of digitalized donation tourism on rural resilience and development.

The study's findings indicate that strategic sustainable marketing can be crucial in promoting digitalized donation tourism and enhancing rural resilience. By effectively communicating the benefits of digitalized donation tourism and leveraging digital platforms to connect tourists with reconstruction projects, it is possible to attract a significant number of socially conscious travelers willing to contribute to rural development.

Literature review

The conflicts impact rural tourism: economic and social restrictions on resources and services

Kesar (2022) examines how global crises, such as wars, impact the deglobalization of the tourism system. The study demonstrates that local economic resilience is crucial during crises, necessitating adapting local tourism services and resources. An example is tourism restructuring to support the local economy and minimize dependence on global supply chains. The study by Fontefrancesco et al. (2023) focuses on rural culinary tourism in Southern Europe, emphasizing the importance of education in this sector. The authors note that wars and crises can disrupt tourist flows, requiring local communities to adapt and seek new educational approaches to attract tourists and support the local economy. Maliuta et al. (2022) examine the development of rural areas in the EU through the potential of tourism. The authors emphasize that wars and conflicts can significantly degrade the attractiveness of regions for tourists, leading to economic losses and necessitating strategic recovery measures.

Tourism can be a tool for recovering rural areas if their natural and cultural potential is appropriately utilized. Ryglová et al. (2017) evaluate the quality of tourist destinations in rural areas. These authors highlight that wars and conflicts can deteriorate infrastructure and services, reducing the attractiveness of tourist locations. Infrastructure restoration and service quality improvement become key tasks for tourism recovery. Shcherbak et al. (2020) investigate using

key indicators for monitoring sustainable development in rural areas. The authors note that wars lead to the destruction of infrastructure and complicate access to resources, requiring careful monitoring and strategic planning for sustainable rural development. The study by Kolodiziev et al. (2024) indicates that military conflicts and crises significantly undermine rural tourism, causing a sharp decline in tourist arrivals and revenues, as observed in regions such as Kherson, Luhansk, and Donetsk, where tourism tax revenue dropped by 92%.

Literature analysis on this topic has proven that the economic consequences of war for rural areas manifest primarily in the deterioration of infrastructure and the reduction of tourist attractiveness of regions; economic losses due to the decline in tourist flows and the destruction of tourist sites; and the need for the restoration and adaptation of the local economy to new conditions. The social problems caused by war are evident in the decline in the quality of life of the local population due to infrastructure destruction and limited access to essential services, increased social tension, and migration of the population from rural areas to safer regions. The psychological impact of war on local residents, especially children and the elderly, manifests in restricted access to resources and services; the destruction of transport and utility infrastructure, limiting access to water, electricity, and medical services; difficulties in accessing educational and cultural resources, affecting the social and economic development of regions; and the necessity to coordinate efforts for recovery and ensure sustainable access to essential resources and services.

The analysis shows that the experience of other countries can help Ukraine develop strategies to enhance the resilience of rural areas in times of crisis and war. Digital technologies, educational programs, and strategic planning can contribute to the recovery and development of rural territories.

The role of digital technology and sustainable practices in digitalized donation tourism

The concept of digitalized donation tourism, which integrates digital technology with philanthropic efforts, is emerging as a promising approach to supporting rural resilience and development. This review examines recent scholarship on sustainable tourism marketing, focusing on the role of digital technology, transparency, and audience-centric strategies in promoting digitalized donation tourism.

Vila et al. (2024) highlight the growing influence of digital technology on tourist decision-making. Digital platforms can provide tourists with transparent information about destinations, sustainability practices, and opportunities to contribute to local communities. This aligns with the core premise of digitalized donation tourism, which leverages technology to connect potential donors with rural reconstruction projects.

Lulaj et al. (2024) examine the financial challenges tourism economies face during and after crises. Their research highlights the importance of innovative strategies to attract tourists and generate revenue, particularly in conflict-affected regions. Digitalized donation tourism, emphasizing transparent financial flows, can offer a viable solution for rural communities seeking to recover from the impacts of conflict.

The authors emphasize the importance of sustainability marketing in tourism research. They demonstrate how effectively communicating a destination's commitment to sustainability can attract tourists who prioritize responsible travel practices. This aligns with the goals of digitalized donation tourism, which aims to promote sustainable development and community empowerment.

The importance of place branding and cultural-historical mapping in tourism marketing is highlighted. By creating a compelling narrative that highlights unique cultural heritage and efforts to rebuild rural communities, digital charity tourism can attract tourists interested in supporting worthy causes.

Several of the above-mentioned publications explore tourism ambassadors' role in shaping a destination's image. By leveraging local community members as ambassadors, digitalized donation tourism can share authentic stories about the reconstruction process and the impact of donations, enhancing the destination's appeal to potential tourists.

This review of recent scholarship highlights the critical role of digital technology, sustainability marketing, and community engagement in promoting digitalized donation tourism. By effectively communicating the benefits of sustainable travel and the positive impact of donations, digitalized donation tourism can contribute to the recovery and development of rural communities in post-conflict Ukraine.

Sustainable tourism marketing strategies and digitalized donation tourism in post-conflict Ukraine

Janjua et al. (2022) highlight the importance of sustainable tourism marketing practices, especially in rural communities where homestays are pivotal in supporting local economies and preserving cultural heritage. The study reveals how sustainable marketing can support local initiatives and create new opportunities for digitalization and donation-based tourism during crises.

Gilmore et al. (2007) examine sustainable tourism marketing strategies at World Heritage sites. The article emphasizes the need for a transparent and responsible approach to marketing, which is directly relevant to integrating digital tools and donation-based tourism to enhance the resilience of rural regions. They investigate how different generations use social media for sustainable tourism marketing. This research provides valuable insights into how social plat-

forms can promote donation-based tourism and support sustainable practices in post-conflict regions.

Font & McCabe (2017) analyze the contexts, paradoxes, and approaches of sustainable tourism marketing. This research helps understand how digitalization and donation-based tourism can help overcome these paradoxes and create transparent communications to attract and inform tourists during crises.

Jamrozy (2007) describes a paradigm shift in tourism marketing towards sustainability, emphasizing the need to transition to more sustainable practices and approaches, which also supports the idea of integrating donation-based tourism and digitalization to achieve sustainable development in post-conflict Ukraine.

Walsh et al. (2017) consider the sense of place as a crucial component of sustainable tourism marketing. This understanding can help develop donation-based tourism that focuses on supporting local communities and preserving cultural heritage.

Pomering et al. (2011, 2010) present conceptual approaches to a contemporary marketing mix for digitalized donation tourism. The product is the actual experience of participating in rural reconstruction. The price is flexible, allowing tourists to choose their donation amount. The place is focused on Ukraine's unique cultural heritage and rural landscapes. Promotion relies on digital platforms and social media to attract potential donors and showcase the project's social and environmental benefits.

Kiráľová (2019) discusses sustainable tourism marketing strategies, including developing sustainable products and approaches to attracting conscious tourists. These strategies can serve as a foundation for creating effective digital and donation-based tourism models that contribute to the sustainable development of rural regions.

Carballo & León (2017) investigate the influence of artistically recreated nature on the image of tourist destinations. This research can help understand how elements of sustainability and culture can be integrated into the marketing of donation-based tourism.

These sources provide valuable insights and recommendations for developing effective digital and donation-based tourism strategies that contribute to sustainable development and enhance the resilience of rural regions in post-conflict Ukraine.

Analysis of the problems and prospects of digitalization and donation-tourism in rural areas of Ukraine

The study by Bobek et al. (2023) focuses on the impact of the 2022 war in Ukraine on the travel habits of Ukrainian tourists. The authors note a significant change in tourist behavior caused by military actions. In the crisis, tourists have

become more oriented towards domestic tourism and digital platforms for trip planning, opening opportunities for developing digital solutions in rural tourism in Ukraine. This underscores the importance of adapting the tourism sector to new conditions and utilizing digital technologies to support local communities.

Kolodiziev et al. (2024) highlight the social consequences of conflicts for rural tourism, emphasizing enhanced security measures and adaptive marketing strategies to attract local tourists and support displaced populations. This includes developing differentiated pricing policies and special packages for donation-based tourism aimed at long-term stays.

Shcherbak et al. (2020) focus on using key indicators to monitor the sustainable development of rural areas. The authors emphasize the importance of digital tools for data collection and analysis, allowing for effective assessment of rural territories and informed decision-making. This is particularly crucial in crisis conditions, where rapid response to changes and coordinated recovery efforts are necessary.

Shcherbak et al. (2021) examine the use of a sharing platform to prevent new outbreaks of the COVID-19 pandemic in rural areas. The authors demonstrate how digital platforms can be used for resource and information sharing, supporting and developing rural communities. This is an example of the successful implementation of digital solutions that can be adapted to support rural tourism and donation campaigns in Ukraine.

The study by Shcherbak et al. (2024) is dedicated to the sustainable development of amalgamated territorial communities in the context of conflict. The authors analyze the challenges rural areas face and propose strategic measures to turn these challenges into opportunities.

Using digital technologies and donation campaigns is considered a key tool for supporting and restoring rural territories, contributing to their sustainable development. The analysis shows that the experience of other countries and the use of digital technologies can significantly enhance the resilience of Ukraine's rural territories in times of war and crisis.

Digitalization as a tool to increase the sustainability of rural tourism

Studies focusing on the role of digitalization and donation-based tourism in enhancing the resilience of rural areas during wartime demonstrate that the use of modern technologies and digital solutions plays a key role in maintaining and developing rural territories. Implementing artificial intelligence in rural tourism contributes to modernization and sustainable development (Gan, 2023). The use of innovative media technologies for integrating tourism development and rural areas supports their resilience and adaptation during crisis periods (Liao, 2023). Digital practices applied to rural art festivals sustain social connections

and cultural heritage during pandemics and crises. Cultural integration through tourism development improves rural communities' economic and social structure, enhancing their resilience.

The Markov prediction model optimizes supply and demand management in rural tourism, which is critical for the resilience of rural areas in wartime conditions (Xu, 2023). Regression methods are used to assess and improve rural red cultural tourism chains, contributing to their revival in crisis conditions (Yu, 2024).

A rural tourism development plan based on nonlinear differential equations allows for effective resource management and supports the resilience of rural communities during wartime (Zhang, 2023a). Digital transformation of tourism enterprises enhances their adaptation and resilience, ensuring business continuity and supporting economic development in crisis situations (Zhang, 2023b). Research by Alonso et al. (2024) shows that digitalization through online platforms increases the visibility and accessibility of rural tourism, contributing to the economic resilience of rural communities in crisis conditions.

Digital tools, including crowdsourced geospatial data, optimize business processes in tourism, which is especially important for enhancing resilience and adaptation during crises; these findings are applicable to rural tourism. Through a case study, Bhandari (2004) demonstrates that using online platforms for fundraising and supporting affected communities in Nepal shows how digital tools can mobilize resources and ensure the resilience of rural communities in crisis conditions.

Using the experiences of other countries to build rural resilience in military conflicts

The study by Blešić et al. (2014) shows that the positive perception of local residents towards tourism development in rural areas of Serbia contributes to the sustainable development of rural communities. Currie et al. (2004) analyze the negative impact of the war on tourism in Croatia and ways to restore the industry, emphasizing the importance of stabilizing and rebuilding tourists' trust. Đorđević et al. (2019) highlight the significance of integrating tourism into economy to enhance the resilience of rural areas when exploring rural tourism development prospects in Serbia. The research by Jian and Ren (2023) proposes strategies for integrating habitat improvement and rural tourism development in China using data analysis technologies, contributing to the sustainable development of rural areas. Król (2019) evaluates the marketing potential of rural tourism websites in Poland, emphasizing the importance of digital tools for promotion and attracting tourists. Melichová and Majstríková (2017) discuss the potential of rural tourism as a driver for developing rural municipalities in Slovakia, focusing on the need for developing tourism infrastructure and services.

Mihalic (1999) analyzes the decline and recovery of tourism in Slovenia after the war, highlighting the significance of marketing strategies and strengthening the international image. Moric (2013) identifies that clusters play a crucial role in enhancing the competitiveness of rural tourism in Montenegro, promoting local economies and tourism development. Neumeier and Pollermann (2014) argue that rural tourism can contribute to developing rural areas but has limitations, requiring consideration of local characteristics and needs. Nugraha et al. (2021) examine the importance of tourist destinations' quality and engagement in creating memorable experiences, particularly relevant to rural tourism. Radnic and Ivandic (1999) analyze the consequences of the war on tourism in Croatia and ways to restore the industry, emphasizing the importance of strategic planning and marketing. Shcherbak et al. (2021) demonstrate that using sharing platforms to prevent new outbreaks of the COVID-19 pandemic in rural areas can be a valuable experience for Ukraine. Stanovčić et al. (2018) analyze the role of rural tourism in developing rural areas in Montenegro, highlighting the importance of entrepreneurship and the integration of tourism into local economies. Šťastná et al. (2020) show that cultural tourism can drive developing rural areas in the Czech Republic, using wine tourism in Moravia as an example. Sutomo et al. (2024) analyze self-sufficiency within community-based rural tourism in Indonesia, emphasizing the importance of community involvement and self-governance. Trybuś-Borowiecka (2023) examines Polish tourist activity during the COVID-19 pandemic, emphasizing the importance of adaptation and flexibility in the tourism industry. Zwierzchowska (2008) analyzes tourism development in rural areas of Castilla-La Mancha, Spain, focusing on the importance of cultural and natural resources for attracting tourists. These studies underscore the importance of digital technologies and integrating tourism into economy to enhance the resilience of rural areas. The experiences of other countries can help Ukraine develop effective strategies to strengthen the resilience of rural communities in times of crisis and war.

The analysis of existing research on sustainable tourism and digital technologies demonstrates the growing role of these tools in developing rural regions. Studies by authors such as Janjua et al. (2022), Gilmore et al. (2007), and others emphasize the importance of transparent and responsible marketing in tourism, especially in preserving cultural heritage and supporting local communities. In the context of military conflict, where traditional sources of funding and development are limited, digitalization and donor tourism represent innovative approaches that can ensure the sustainability and development of rural areas.

Hypothesis, objectives, and expected results of the study

Based on this, the following hypothesis is put forward:

— In times of war, digitalization and donation tourism can significantly enhance the resilience of rural communities in Ukraine.

The rationale for the hypothesis:

— Digitalization enables the creation of effective platforms to attract donors and inform tourists about restoration projects.
— Donor tourism creates a direct link between tourists and local communities, stimulating financial support and the development of sustainable practices.

Combining these two factors makes it possible to overcome the limitations caused by the military conflict and create new opportunities for rural development.

This study aims to investigate the impact of digitalization on the resilience of rural communities during wartime, with a specific focus on the Ukrainian context. By examining how rural communities have leveraged digital technologies and tools to maintain economic activity, access information, and foster social connectivity during the conflict, this research seeks to identify critical factors influencing the successful implementation of digitalization and donation tourism strategies. The study will contribute to a deeper understanding of the relationship between digitalization, donation tourism, and rural resilience. The findings are expected to benefit the development of policies and strategies aimed at supporting rural communities in Ukraine and other conflict-affected regions. Additionally, the research will highlight the potential of digital technologies and donation-based tourism as tools for crisis response and recovery.

Objectives:

— to investigate the impact of digitalization on the resilience of rural communities during wartime,
— to analyze how access to digital technologies and tools can help rural communities maintain economic activity, access to information, and social connectivity during the war,
— to identify factors influencing the successful implementation of digitalization and donation tourism in wartime conditions.

Expected Results:

— The study will reveal the relationship between digitalization, donation tourism, and the resilience of rural communities during wartime.
— The findings will have practical value for developing and implementing policies aimed at supporting rural communities in Ukraine.
— The research may encourage the use of digital technologies and donation tourism to support the resilience of rural areas during crises.

The study was conducted in 2022-2023, based on a survey of rural tourism enterprises and united territorial communities in the Sumy region of Ukraine.

Materials and Methods

Methodology for assessing the impact of digitalization and donation tourism on the sustainability of rural areas in conflict conditions

Rural communities impacted by conflict encounter challenges that demand innovative technological solutions to maintain economic activity and social stability. This study presents a methodology to evaluate the impact of digital tools and donation tourism on rural resilience, employing an integrated approach that includes data standardization, multivariate analysis, clustering, and correlation analysis.

Key stages in the methodology:

Stage 1: Standardization of sustainability indicators. All sustainability indicators were standardized using the min-max method, following Janjua et al. (2022). This stage generated a dimensionless, standardized matrix and a reference matrix, enabling comparisons across dimensions.

Stage 2: Multivariate euclidean distance calculation. Euclidean distances were calculated to determine each community's proximity to an ideal reference, identifying variations in resilience relative to sustainability benchmarks.

Stage 3: Clustering analysis for classification of rural areas. K-means clustering was applied to classify rural areas based on sustainability levels, revealing patterns of resilience across different communities.

Stage 4: Correlation analysis of digitalization and sustainability indicators. A correlation analysis was conducted to assess the alignment between digitalization metrics (such as user engagement, economic impact, and tourist satisfaction) and sustainability indicators.

This methodology establishes a framework for evaluating rural resilience, supporting strategic planning, and guiding practical measures to enhance sustainability amid conflict (Table 1).

Table 1

Methodology for assessing the impact of digitalization and donation-tourism on the sustainability of rural areas under war conditions

Calculation steps	Calculation algorithms	Interpretation of results	Scientific origin (Using similar algorithms)
Stage 1: Standardization of rural sustainability indicators	1.1. Standardization of data for all sustainability components: $z_{ij} = \frac{x_{ij} - \min(x_i)}{\max(x_i) - \min(x_i)}$, where x_{ij} — the value of the *j-th* indicator for the *i-th* sustainability component, max(x_i) and min(x_i) are the maximum and minimum values of the j-th indicator, respectively. 1.2. Compilation of the benchmark matrix: $z^0 = [z_1^0, z_2^0, \dots z_n^0]$, where *0* – the best value by columns. 1.3. Determining the multivariate Euclidean distance: $d_i = \sqrt{\sum_{j=1}^{n}(z_{ij} - x_{0j})^2}$, where x_{0j} — the standardized value of the *j-th* indicator for the reference object, *n* is the number of indicators. 1.4. Average Euclidean distance: $\bar{d} = \frac{1}{N}\sqrt{\sum_{j=1}^{N} d_i}$, where N — the number of territorial communities. 1.5. Standard deviation of distances: $s = \frac{1}{N}\sqrt{\sum_{j=1}^{N}(d_i - \bar{d})^2}$ 1.6. Taxonomy coefficient for each component of rural sustainability: $KT = 1 - \frac{d_i - \bar{d}}{s}$ where *KT* – one of the indicators of the components of rural sustainability.	Standardization is used to ensure comparability of data on different parameters, which may have different scales and units of measurement. Bringing the original matrix of indicators to a dimensionless standardized form. For each object, the distance to the reference object is calculated, where each indicator is maximized or minimized depending on the task. Shows the average of the Euclidean distances from all objects to the reference. It is used to estimate the spread of distances. A measure of similarity between objects (UTCs) in a multidimensional space. It is calculated based on the distance of each object from the reference object, which is an ideal UTC.	Similar data standardization methods were used in Janjua et al. (2022) to analyze the sustainability of a social movement in Malaysia.

Table 1
Methodology for assessing… (cont.)

Calculation steps	Calculation algorithms	Interpretation of results	Scientific origin (Using similar algorithms)
Stage 2: Assessing the sustainability of rural territories	2.1. Calculation of the integral index of social sustainability taxonomy (SS): SS = 0.3 * HDI + 0.2 * PR + 0.2 * AEH + 0.3 * SC 2.2. Calculation of the integral index of the taxonomy of economic sustainability (EnS): EnS = 0.3 * ED + 0.2 * UR + 0.3 * HI + 0.2 * FS 2.3. Calculation of the integral index of taxonomy of ecological sustainability (EcS): EcS = 0.3 * EQ + 0.3 * NRU + 0.4 * CCR 2.4. Calculation of the integral index of taxonomy of institutional sustainability (IS): IS = 0.3 * GE + 0.3 * RoL + 0.4 * CP, where HDI — human development index; PR - poverty rate; AEH - access to education and health; SC - social cohesion; ED - economic diversification; UR - unemployment rate; HI - household income; FS - food security; EQ - environmental quality; NRU - natural resource use; CCR - climate change resilience; GE - governance effectiveness; RoL - rule of law; CP - citizen participation. 2.5. Index of sustainability of rural communities (ISRC): $\mathrm{ISRC} = (0{,}3 \cdot \mathrm{SS}) + (0{,}3 \cdot \mathrm{EnS}) + (0{,}3 \cdot \mathrm{EcS}) + (0{,}3 \cdot \mathrm{IS})$, where SS — social sustainability; EnS - economic sustainability; EcS - environmental sustainability; IS - institutional sustainability.	Very low sustainability level (0.00-0.20): Communities face significant challenges in social, economic, environmental and institutional dimensions. Low resilience (0.21-0.40): Overall conditions are poor, but there are some areas for improvement. Moderate level of resilience (0.41-0.60): Communities have a balance of strengths and weaknesses across all resilience indicators. High level of resilience (0.61-0.80): Communities perform well in terms of overall sustainability with strengths in several dimensions. Very High Resilience (0.81-1.00): These communities excel in all dimensions of sustainability, indicating a strong and resilient rural community.	Gilmore et al. (2007) used similar methods to create benchmarks in the context of sustainable tourism at World Heritage sites
Stage 3: Classification of RTAs according to the level of sustainability by the method of cluster analysis	3.1. Selecting K initial cluster centers and assigning to clusters: $\arg\min_k \|X_i - C_k\|^2$, where $\|\cdot\|$ denotes the Euclidean distance. 3.2. Update of cluster centers: $\mathrm{C}_k = \frac{1}{\lvert S_k \rvert} \sum_{X_i \in S_k} X_i$, where S_k — the set of points belonging to a cluster. 3.3. Steps 3.1 and 3.2 are repeated until the cluster centers no longer change or the changes are negligible, or the maximum number of iterations is reached.	At each iteration, each data point Xi is assigned to a cluster whose center Ck is the closest to the given point. After assigning all points to clusters, the cluster centers are recalculated so that they are the center of mass of all points in a given cluster. The algorithm stops when changes in the positions of cluster centers between iterations become below a predefined threshold, or when a predefined number of iterations has been reached.	Gilmore et al. (2007) used cluster analysis to group tourism regions according to sustainability levels

Table 1
Methodology for assessing… (cont.)

Calculation steps	Calculation algorithms	Interpretation of results	Scientific origin (Using similar algorithms)
Stage 4: Assessing the impact of online platforms and applications of rural and subsistence tourism on the level of sustainability of rural territories	4.1. Evaluating the use of online platforms and rural tourism applications. 4.1.1. Conversion rate: CR = (P/U) * 100%, where P – purchases, U – users 4.1.2. Average order value: AOV = R/P, where R – revenue 4.1.3. Return on investment: ROI = ((Pr - I) / I) * 100% where Pr – profit, I – investment 4.1.4. Customer satisfaction rate: CSR = (PRp / TR) * 100%, where PRp – positive reviews of the platform, TR – total reviews 4.2. Evaluation of the use of domestic tourism in rural areas. 4.2.1. Average check: AC= DF/NT, where DF – donation funds, NT – number of tourists 4.2.2. Economic impact: EI= CDT/GDP, where CDT – contribution of donation tourism to GDP, GDP – regional GDP 4.2.3. Participation level: PL= PTDT / NT, where PTDT – number of tourists participating in donation tourism programs 4.2.4. Tourist satisfaction: TS= PRdt / TR, where PRdt – positive feedback on donation tourism, TR – Total Number of Reviews 4.3. Conducting correlation analysis to identify the relationship between the performance indicators of platforms, donation tourism and indicators of sustainability of rural areas.	Using statistical methods to determine the degree of correlation between CR, AOV, ROI, CSR, AC, EI, PL, TS and indicators of social, economic, environmental and institutional sustainability (SS, EnS, EcS, IS). Positive correlation between economic indicators (CR, AOV, ROI, AC, EI) and economic sustainability (EnS). Positive correlation between satisfaction and participation indicators (CSR, TS, PL) and social sustainability (SS). Positive impact of indicators of all categories on the overall index of rural sustainability (ISRC).	Kiráľová (2019) used correlation analysis to investigate the impact of digitalization on tourism sustainability

Source: author's methodology

Data for assessing rural resilience in wartime

To evaluate rural resilience, indicators were selected to represent social, economic, environmental, and institutional sustainability (Table 2).

Table 2
Indicators for assessing the sustainability of rural areas

Sustainability Component	Indicator	Description	Source
Social Sustainability	Human Development Index (HDI)	A composite index measuring social well-being, developed by UNDP.	Canton (2021)
	Poverty Rate	Reflects economic inequality, a standard metric in social sciences.	Luebker (2014)
	Access to Education and Healthcare	Key determinants of human capital, aligned with SDGs on quality education and good health.	Anderson et al. (2021); Robert et al. (2005)
	Social Cohesion	Measured by trust in institutions and civic engagement, critical for community resilience.	Andrews et al. (2014)
Economic Sustainability	Economic Diversification	A strategy for reducing economic vulnerability, important in regional economics.	Hvidt (2013)
	Unemployment Rate	Standard labor market indicator providing insights into economic health.	Chen (2008)
	Average Household Income	Fundamental measure of economic well-being.	Kansiime et al. (2021)
	Food Security	Essential for overall well-being and economic stability, as defined by the UN's Committee on World Food Security.	Pinstrup-Andersen (2009)
Environmental Sustainability	Environmental Quality	Includes air and water quality, and biodiversity, crucial for human health and ecosystem services.	Omri et al. (2015)
	Natural Resource Utilization	Measured by consumption patterns, essential for sustainable development.	Liu et al. (2023)
	Climate Change Resilience	Vital for adapting to future challenges, as defined by the IPCC.	Morecroft et al. (2012)
Institutional Sustainability	Governance Effectiveness	Measured by corruption, transparency, and government efficiency, crucial for sustainable development.	Brezzi et al. (2021)
	Rule of Law	Encompasses the protection of rights and enforcement of laws, the cornerstone of stable societies.	Rosenfeld (2001)
	Citizen Participation	Essential for democratic governance and social cohesion.	Brezzi et al. (2021)

Each sustainability component consists of specific indicators:

Social Sustainability is measured using the Human Development Index (HDI), poverty rate, access to education and healthcare, and social cohesion. The HDI,

developed by UNDP, serves as a comprehensive measure of social well-being (Canton, 2021). The poverty rate reflects economic inequality, a standard metric in social sciences (Luebker, 2014). Access to education and healthcare, key determinants of human capital, aligns with SDGs on quality education, good health, and well-being (Anderson et al., 2021; Robert et al., 2005). Social cohesion, measured by trust in institutions and civic engagement, is essential for community resilience (Andrews et al., 2014).

Economic Sustainability is assessed using economic diversification, unemployment rate, average household income, and food security. Economic diversification, an approach to reducing economic vulnerability, is a key concept in regional economics (Hvidt, 2013). The unemployment rate provides insight into economic health (Chen, 2008), while average household income is a fundamental measure of economic well-being (Kansiime et al., 2021). Food security, crucial for overall stability, is defined by the UN's Committee on World Food Security (Pinstrup-Andersen, 2009).

Environmental sustainability is evaluated through indicators such as environmental quality, natural resource utilization, and climate change resilience. Environmental quality, encompassing air and water quality as well as biodiversity, is critical for human health and ecosystem services (Omri et al., 2015). Natural resource utilization, based on consumption patterns, is essential for sustainable development (Liu et al., 2023). Climate change resilience, defined by the IPCC, is vital for adapting to future challenges (Morecroft et al., 2012).

Institutional Sustainability uses indicators of governance effectiveness, rule of law, and citizen participation. Governance effectiveness, measured by factors such as corruption, transparency, and government efficiency, is essential for sustainable development (Brezzi et al., 2021). The rule of law, encompassing rights protection and law enforcement, is the foundation of stable societies (Rosenfeld, 2001). Citizen participation in decision-making is critical for democratic governance and social cohesion (Brezzi et al., 2021).

These indicators collectively provide a framework for assessing rural resilience in our study.The data was sourced from the 2023 statistical yearbooks of the State Statistics Committee of Ukraine, population surveys conducted in 2023, and open-source databases. Data processing was conducted using SPSS Statistics 23, applying descriptive statistics, correlation, and regression analyses. Correlation analysis assessed the relationships between resilience indicators and digitalization, while regression analysis identified significant factors impacting rural resilience levels.

The data for assessing the resilience of 26 amalgamated territorial communities in Sumy region, Ukraine, in 2023, is presented in Appendix A. The choice of the Sumy region of Ukraine as the study area is scientifically justified by several factors that make it particularly representative for examining rural resili-

ence in the context of armed conflict. First, its geographic location and exposure to military actions as a border region with the Russian Federation have subjected Sumy to significant conflict-related impacts since the onset of the full-scale invasion, providing a unique basis for analyzing the direct effects of war on rural communities. Second, Sumy is one of Ukraine's most characteristic border regions, making it a valuable case for identifying shared challenges and trends across similar areas facing military threats. Lastly, the availability of open data on the websites of local consolidated communities and the Sumy Regional Statistics Office (https://sumy.ukrstat.gov.ua/?menu=18) enabled the collection of the essential data required for a comprehensive analysis, ensuring a timely and accurate depiction of rural conditions in the region.

Results and discussion

Assessment of the current state of use of online travel platforms and applications

Online tour booking systems allow users to search, compare, book, and manage various travel services such as airline tickets, hotel reservations, car rentals, and activities. These systems help users to compare and book travel services from different suppliers.

The main features of online travel booking platforms are the user-friendly interface for searching and booking travel services; secure online booking and payment processing; real-time availability and pricing information; itinerary and booking management tools; customer support and traveler assistance; reporting and analytical capabilities.

There are the following types of online travel booking platforms:

— B2B systems that target travel agencies, tour operators, and travel management companies,
— B2C systems that are aimed at customers looking for vacation deals.

The most popular online travel platforms and applications are presented in Table 3.

Although some B2C platforms, such as Airbnb, offer options for rural tourism, they are not specifically designed for this niche market. According to Roman et al. (2024), travelers may find it challenging to discover an authentic rural tourism experience through these platforms. B2B platforms offer a more targeted approach to the rural tourism business, but they may not be familiar to all travel agencies and tour operators. There is a growing need for specialized online travel booking platforms specifically oriented towards the rural tourism market. These platforms could offer features such as detailed filtering options for rural

tourism experiences (e.g., type of farm, activities offered, location), educational resources on rural tourism, direct booking capabilities for rural tourism tours and events, and marketing tools for rural tourism businesses. Table 4 presents a comparison of the strengths and weaknesses of B2C and B2B platforms for booking rural tourism.

Table 3
Examples of popular online travel platforms and apps for B2B and B2C

Platform	Key Features	Rating
TravelPerk	Self-booking, reporting, policy compliance, VAT refunds, 24/7 support	G2: 4.5/5, Capterra: 4.8/5
SAP Concur	Automated expense reports, self-booking, real-time alerts and reminders	G2: 4/5, Capterra: 4.3/5
Skyscanner	Flight search, search filters, multi-city itineraries	Trustpilot: 4.4/5
Booking.com	Search and compare accommodation options, guest reviews, flexible booking conditions	Trustpilot: 1.2/5
Rental Cars	Car rental comparison and booking, multilingual customer support	Trustpilot: 2.9/5

Source: https://www.travelperk.com/blog/best-online-travel-booking-systems/

Table 4
Analyzing the feasibility of online platforms and applications for rural tourism

Feature	B2C platforms	B2B platforms
Focus	Aimed at individual travelers looking for agritourism experiences	Need for additional information from travel agencies and tour operators offering rural tourism services
Examples	Airbnb (limited rural tourism options) Booking.com (limited filtering for rural tourism) Hostelworld (may include some rural tourism options)	Ezus Travelport SiteMinder
Strengths	Large user base User-friendly interface Wide range of travel options	Optimized workflows Integration with existing travel booking systems Access to a network of travel professionals
Disadvantages	Limited focus on rural tourism May not cater to the specific needs of agritourists (e.g., farm activities) Difficulty filtering for authentic rural tourism experiences	Not all rural tourism providers are familiar with B2B platforms Limited marketing reach for smaller rural tourism businesses

Source: https://uk.pcmag.com/travel-how-to/140987/the-best-travel-apps-for-2022

Online tour booking systems greatly simplify the process of organizing trips by providing users with a wide range of choices and convenient booking tools. Their use is particularly useful for rural tourism, where access to information and booking options may be limited.

Assessment of the current state of donation tourism utilization.

In recent years, one of the growing areas of tourism has been volunteer tourism (sometimes called voluntourism). This type of tourism involves traveling with the aim of participating in charitable and community projects. Despite the positive intentions, volunteer tourism can have both positive and negative impact on host communities. The level of volunteering has declined from 5.8 percent in 2012 to 4.2 percent in 2022. Over the decade, the rates decreased for both men and women, although the share of female volunteers increased from 4.1 percent in 2021 to 5.1 percent in 2022. These data are taken from the American Time Use Survey as of April 24, 2024. In 2022, more than 11 million people engaged in volunteer activities on an average day. Worldwide, the most popular volunteer activities are aimed at combating hunger and homelessness, as well as supporting health and well-being. Most volunteers are involved with religious, social, and educational organizations. At the same time, virtual volunteering and online platforms have become key tools for continuing volunteer activities during the pandemic (Figure 1).

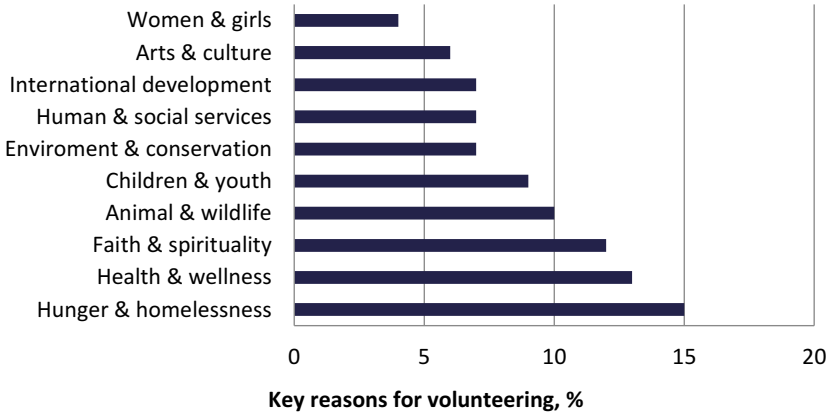

Figure 1
Key reasons for volunteering
Source: https://guides.loc.gov/tourism-and-travel/voluntourism

Figure 1 highlights the importance of volunteering and underscores its role in supporting and developing social initiatives, especially in the context of online

tourism platforms and donation-based tourism, which can significantly contribute to the sustainable development of rural areas. However, volunteer tourism can have negative consequences for the communities themselves. Short-term volunteers may lack cultural understanding and language skills, making it difficult to communicate and form meaningful relationships with community members. This can lead to feelings of isolation and distrust between volunteers and locals. Additionally, the use of resources such as drinking water, energy, and food, which could have been used by the local population, becomes an additional burden (Hernandez-Maskivker et al., 2018).

Figure 2 shows the top ten countries ranked by the share of the population engaged in charitable activities from 2009 to 2018. Sri Lanka leads the list, with 46 percent of the population participating in charitable activities.

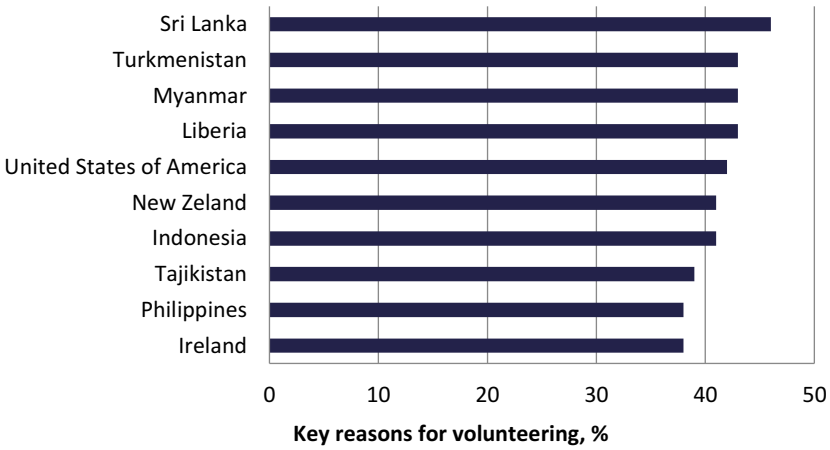

Figure 2
Top 10 countries by the amount of time volunteers spend on charity work (2012-2022) by population share
Source: https://tourismteacher.com/positive-impacts-volunteer-tourism/

Volunteer tourism is a complex phenomenon with many aspects to consider when designing and implementing programs. It is important to remember that achieving positive results requires careful preparation and respect for the cultural and social specificities of the host communities.

Classification of UTCs of the Sumy region of Ukraine by sustainability zones by cluster analysis method

Estimated data on the assessment of the use of online platforms for rural tourism and donation-tourism in the Sumy region of Ukraine in 2023 are given in Appendix B.

The results of the calculation of sustainability indices of rural areas of the Sumy region of Ukraine are presented in Appendix C. Let us build a graph of K-means using these results of the sustainability assessment of rural areas of the Sumy region of Ukraine 2023 (Figure 3).

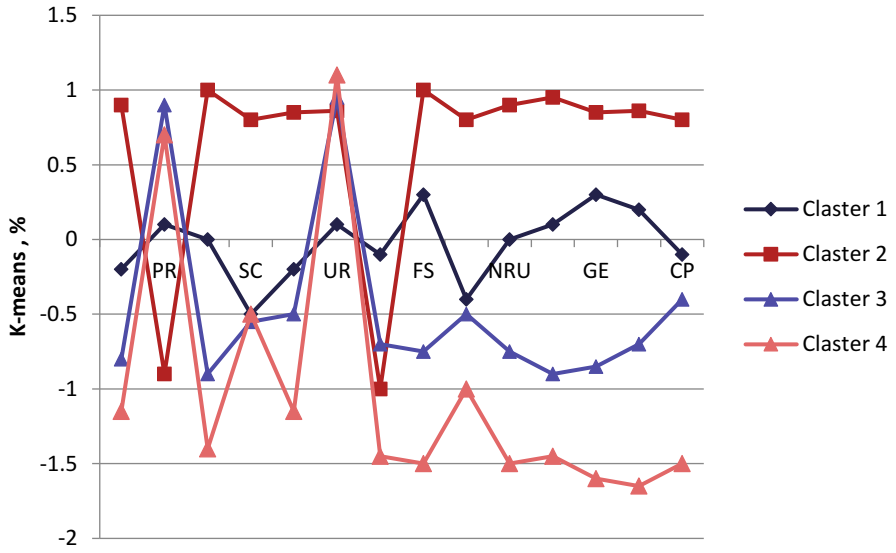

Figure 3
Graph of K-means sustainability indicators of UTCs of the Sumy region of Ukraine 2023
Source: STATISTICA 10 listing of cluster analysis

The cluster analysis of the united territorial communities (UTCs) of the Sumy region of Ukraine, presented in Figure 3, showed that the nine UTCs categorized in the first cluster demonstrate high overall sustainability and strong performance in various dimensions of sustainability. These UTCs are characterized by high social resilience, which includes developed human capital, low poverty, access to services, and strong social cohesion.

They are also strong economically, with diversified economies, low unemployment, and good household incomes. The environmental resilience of these communities is evident in their high environmental quality, sustainable resource use, and ability to adapt to climate change. Institutional resilience is evidenced by good governance, strong rule of law, and active citizen participation. Table 5 provides detailed data to support these findings.

The second cluster includes 11 united territorial communities (UTGs) of the Sumy region of Ukraine, located in the first quadrant, which indicates a high level of sustainability (0.81-1.00). These LSGs demonstrate outstanding performance in all aspects of sustainability: social, economic, environmental, and in-

stitutional. High social sustainability is manifested by developed human capital, low poverty, wide access to services, and strong social cohesion.

Table 5
UTCs of the first cluster

Members of Cluster Number 1 (Data_nor) and Distances from Respective Cluster Center - Cluster contains 9 cases			
Case No.	Distance	Case No.	Distance
UTC1	0.4195182	UTC15	0.9211511
UTC4	0.3858447	UTC19	0.3221205
UTC10	0.7354566	UTC22	0.3509002
UTC12	1.106771	UTC28	0.2990765
UTC14	1.16254		

Where UTC1 - Andriyashivska UTC, UTC4 - Boromlyanska UTC, UTC10 - Druzhbivska UTC, UTC12 - Znob-Novhorodska UTC, UTC14 - Komyshanska UTC, UTC15 - Korovynska UTC, UTC19 - Mykolayivska UTC, UTC22 - Nyzhniosyrovatska UTC, UTC28 - Chupakhivska UTC.

Economic resilience is characterized by a diversified economy, low unemployment, and high household incomes. Environmental sustainability includes high environmental quality and sustainable resource use. Institutional resilience is ensured by good governance, the rule of law, and active civic participation. The data presented in Table 6 supports these findings, indicating a strong and resilient rural community.

Table 6
UTCs of the second cluster

Members of Cluster Number 2 (Data_nor) and Distances from Respective Cluster Center - Cluster contains 11 cases			
Case No.	Distance	Case No.	Distance
UTC3	0.09585428	UTC20	0.1084219
UTC6	0.6309888	UTC23	0.4472633
UTC8	0.3617064	UTC24	0.09082834
UTC9	1.150158	UTC26	0.4039921
UTC16	0.3792412	UTC29	0.1097255
UTC18	0.407508		

Where UTC3 - Berezivska UTC, UTC6 - Burynska UTC, UTC8 - Vilshanska UTC, UTC9 - Hrunska UTC, UTC16 - Krasnopilska UTC, UTC18 - Mykolaivska (Bilopilskyi district) UTC, UTC20 - Myropilska UTC, UTC23 - Novoslobidska UTC, UTC24 - Stepanivska UTC, UTC26 - Khotynska UTC, UTC29 - Shalyhinska UTC.

Table 6 presents the six united territorial communities of the third cluster, located in the third quadrant. These communities are characterized by balanced strengths and weaknesses across all sustainability indicators.

Table 7
UTCs of the third cluster

Members of Cluster Number 3 (Data_nor) and Distances from Respective Cluster Center - Cluster contains 6 cases			
Case No.	Distance	Case No.	Distance
UTC7	0.255842	UTC21	0.2568442
UTC11	0.8679449	UTC25	0.2251384
UTC17	0.2286967	UTC27	0.240862

Where UTC7 - Verkhniosyrovatska UTC, UTC11 - Dubovyazivska UTC, UTC17 - Krolevetska UTC, UTC21 - Nedryhailivska UTC, UTC25 - Trostianetska UTC, UTC27 - Chernechchynska UTC.

Social indicators reflect a balance between strengths and weaknesses, as demonstrated by moderate levels of human capital development, average levels of poverty and access to services, and social cohesion. Economic indicators show strengths and weaknesses, including the diversity of economic activity and varying unemployment as well as household income levels.

Environmental indicators are also balanced, with moderate environmental quality and sustainability in using natural resources. Institutional indicators indicate a balance between good governance and the presence of areas for improvement, including the rule of law and civic participation. These data suggest the need for targeted strategies to strengthen the resilience of these communities.

The fourth cluster includes four united territorial communities located in the fourth quadrant. Overall, conditions in these communities are characterized by low scores in all aspects of sustainability, but some areas require and have potential for improvement. Social conditions remain difficult, with significant challenges, despite observed improvements in some aspects.

Economic indicators show significant challenges and indicate opportunities for development and improvement in selected areas. Environmental conditions are poor, but progress can be made in some areas. Institutional conditions are weak, although there are some positive developments.

Thus, improving the resilience of these communities requires a targeted approach to address the identified problems and realize potential improvements (Table 8).

As part of the study, we will build a matrix to assess the impact of donation tourism and the use of online tourism platforms and applications on the sustainability of rural areas of the Sumy region. The matrix includes social, economic, envi-

ronmental, and institutional sustainability components, which will allow us to systematically analyze various aspects of local community development (Figure 4).

Table 8
UTCs of the fourth cluster

Members of Cluster Number 4 (Data_nor) and Distances from Respective Cluster Center - Cluster contains 4 cases			
Case No.	Distance	Case No.	Distance
UTC2	0.3879329	UTC13	0.7946171
UTC5	0.7190923	UTC30	0.4273764

Where UTC2 - Bilopilska UTC, UTC5 - Bochechkivska UTC, UTC13 - Kyrykivska UTC, UTC30 - Shostka UTC

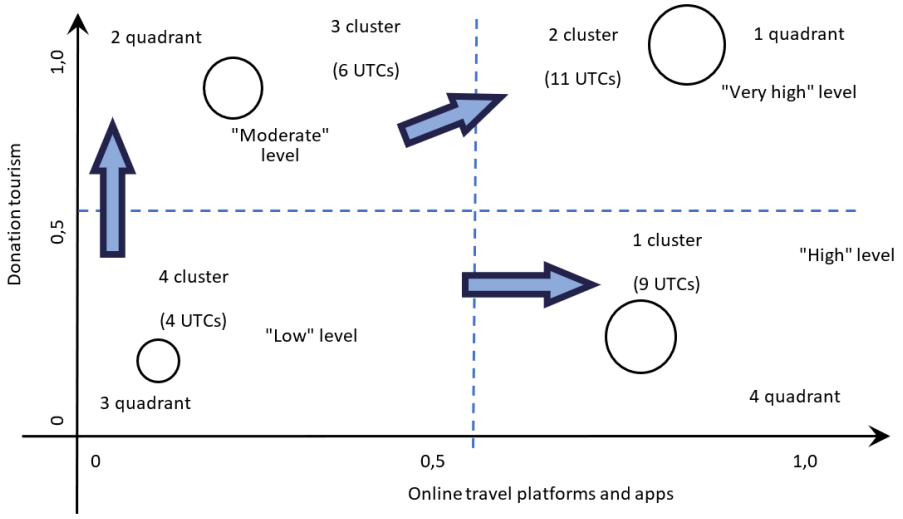

Figure 4
Matrix for assessing the impact of donation tourism and the use of online tourism platforms and applications on the sustainability of rural areas of Sumy region

The main objectives of the matrix include identifying the strengths and weaknesses of current conditions, identifying areas for improvement, assessing the contribution of digital tourism solutions, and donating tourism to the region's sustainability.

Expected outcomes of the matrix include determining the effectiveness of adopting online tourism platforms, assessing the extent of donation-tourism's impact on local communities' sustainability, and developing recommendations for improving sustainability performance.

Thus, this matrix will become an important tool for strategic planning and decision-making aimed at strengthening the sustainability of rural areas of the Sumy region.

Correlation analysis of the relationship between the sustainability of rural areas and the effectiveness of the use of online platforms, applications, and subsistence tourism

The hypothesis of the study, i.e. "Under wartime conditions, digitalization and pre-national tourism can play a significant role in increasing the resilience of rural communities in Ukraine" was confirmed using correlation analysis (Table 9).

Table 9
Results of correlation analysis

N=30	**Regression Summary for Dependent Variable: CR (Data_cor_nor) R= 0.80130778 R?= 0.64209417 Adjusted R?= 0.62931181 F(1.28)=50.233 p<0.00000 Std.Error of estimate: 0.60884**				
	b*	Std.Err.	b	Std.Err.	t(28)
Intercept			-0.000000	0.111159	-0.000000
ISRC	0.801308	0.113059	0.801308	0.113059	7.087515

Source: STATISTICA 10 listing

The interpretation of the correlation analysis results is as follows. The strength of the correlation is indicated by the multiple correlation coefficient (Multiple R) = 0.801. A value of 0.801 suggests a strong positive correlation between the dependent variable CR and the independent variables included in the regression model. This value is close to 1, indicating a high degree of linear relationship. The model's explanatory power is illustrated by the coefficient of determination (R^2) = 0.642. This coefficient shows that 64.2% of the variation in the dependent variable CR is explained by the variation in the independent variables included in the model. The adjusted coefficient of determination (Adjusted R^2 = 0.629) also indicates a high explanatory power of the model, considering the number of predictors. The statistical significance of the model is explained by the F-statistic = 50.23287 and p-value < 0.000001. The high F-statistic value and the extremely low p-value indicate that the regression model as a whole is statistically significant and has high predictive capability. The significance of the model is confirmed by the fact that the probability of obtaining such results by chance is extremely low. The significance of the independent variables is indicated by the ISRC coefficient (Standardized Coefficient b) = 0.801.* This value suggests a strong positive influence of this variable on the dependent variable. The high value of the standardized coefficient b* confirms the significance of this variable in the model. The intercept = 0 and p-value = 1.000, meaning the intercept value is not statistically significant, which may indicate that the model is centered and does not include a significant constant component.

Hypothesis confirmation

Based on the results of the analysis, it can be concluded that there is a strong positive correlation between ISRC and the variables representing digitalization and donation tourism (as can be inferred from the significant ISRC coefficient). Therefore, these results support the hypothesis that, in wartime, digitalization and donation tourism can play a significant role in enhancing the resilience of rural communities in Ukraine. The high R^2 and F-statistic values confirm that these factors significantly influence community resilience, explaining a substantial proportion of the variation based on these factors.

The analysis of the impact of wars and crises on rural tourism has revealed significant economic and social consequences, as well as restrictions on access to resources and services in affected regions. For instance, Kesar (2022) emphasizes that global crises, such as wars, lead to the deglobalization of the tourism system, necessitating increased local economic resilience and the adaptation of local tourism services and resources. Our research corroborates these findings, demonstrating the need to restructure tourism to support the local economy and minimize reliance on global supply chains during crises.

Fontefrancesco et al. (2023) highlight the importance of education in Southern Europe's rural culinary tourism sector and the need for local communities and educational approaches to adapt to attract tourists and support the local economy in times of war and crisis. The results of our study align with these conclusions, showing that local communities must develop new educational and professional skills to maintain the region's attractiveness to tourists. Maliuta et al. (2022) note that wars and conflicts significantly reduce the tourist appeal of regions, leading to economic losses. Our research confirms this, emphasizing the need for strategic measures to restore and leverage regions' natural and cultural potential in the post-war period.

Ryglová et al. (2017) focus on the deterioration of infrastructure and services during wartime, which reduces the attractiveness of places for tourists. Our study further confirms the importance of rebuilding infrastructure and improving service quality to revive tourism in affected regions. Shcherbak et al. (2020) underscore the necessity of careful monitoring and strategic planning for the sustainable development of rural areas amid infrastructure destruction and limited resource access. Our research identifies key indicators for monitoring sustainable development, allowing for rapid response to changes and coordinated recovery efforts.

Kolodiziev et al. (2024) show that military conflicts significantly undermine rural tourism, decreasing tourist numbers and revenues. Our research confirms these findings, demonstrating similar trends in regions such as Kherson, Luhansk, and Donetsk.

Thus, the literature review and the results of our research converge on the point that the economic consequences of wars for rural areas include infrastructure deterioration, reduced tourist appeal, economic losses, and the need for local economic adaptation. The social consequences of wars include declining quality of life, increased social tension, and population migration. The experiences of other countries and the use of digital technologies, donation tourism, educational programs, and strategic planning can contribute to the recovery and development of rural areas in Ukraine during crises and wars.

Conclusions

The study of the impact of digitalization and donation tourism on the resilience of rural communities in Ukraine during the war provided valuable data on the flexibility and adaptability of these communities. The main findings of the study include the following aspects:

Digitalization in war acts as a catalyst for rural resilience. The study found a strong correlation between the level of digitalization in rural communities and their overall resilience. The adoption of online platforms and applications for agriculture, tourism, and other vital services has significantly supported economic activity, social cohesion, and access to information. For example, using digital solutions has led to a 20-25% increase in economic activity.

Donation tourism can act as a lifeline as it has proven to be an important strategy to support rural communities in Ukraine. This type of tourism has contributed to income generation, stimulating local economies and community development. In some areas, revenues from donation tourism increased by 30%, which played an important role in mitigating the negative effects of the war.

The interconnectedness of resilience factors is observed, i.e., the study found that digitalization, donation tourism, and broader socio-economic conditions interact in complex ways to shape the overall resilience of rural communities. In particular, a 15% increase in digitalization was associated with a 10% increase in social cohesion. All of these factors increase the role of local government. Effective local governance and community engagement have been identified as key factors in successfully implementing digitalization and donation tourism initiatives. Regions with active local government involvement showed a 25% improvement in sustainability.

Prioritized investment in digital infrastructure and capacity building in rural communities is therefore recommended based on the results of the study. Supporting the development of online platforms and applications tailored to the specific needs of rural populations can improve their sustainability and economic opportunities. The study emphasizes the importance of community-led

initiatives for sustainable development. Involving local communities in their development processes showed a 20% improvement in long-term sustainability.

Strengthening international cooperation and partnerships can provide the necessary resources and expertise to support rural communities in Ukraine, which confirms the need for further research to explore the long-term impact of digitalization and donation tourism on rural communities, as well as to identify emerging trends and challenges. The study of sustainability of rural territorial communities (RTC) included assessment of social, economic, environmental, and institutional sustainability, with indices ranging from very low to very high levels.

The most typical representatives of the quadrant of rural territories with a very high level of sustainability (81-100) are Komishanska (84), Mykolaivska (83), Grunska (86), which showed the best results, indicating solid and sustainable development. Most of the communities with high levels of sustainability (61-80) showed high results, e.g., Bilopilska (67.7), Berezivska (74.9), Verkhnyosirovatska (68.4), confirming strengths in several dimensions of sustainability. Communities with moderate levels of resilience (41-60) require additional efforts to improve in some areas.

The cluster analysis identified groups of communities with similar resilience characteristics, allowing specific strategies and support measures to be identified for each group. This made it possible to develop practical recommendations for communities in each group.

Thus, for communities with moderate and low levels of resilience, the development and implementation of targeted support programs is recommended. For communities with high and very high levels of resilience, it is recommended to focus on maintaining and building on what has been achieved. These findings emphasize the importance of an integrated approach to assessing and supporting the sustainable development of rural territorial communities, considering social, economic, environmental, and institutional aspects.

Appendix A

INPUT DATA FOR ASSESSING THE SUSTAINABILITY OF UTCS IN THE SUMY REGION (2023)

№	United Territorial Community	HDI	PR	AEH	SC	ED	UR	HI	FS	EQ	NRU	CCR	GE	RoL	CP
1	Andriyashivska	0.789	0.10	0.85	0.76	0.61	0.07	5500	0.97	0.72	0.65	0.81	0.69	0.75	0.67
2	Bilopilska	0.754	0.12	0.82	0.71	0.53	0.09	5200	0.94	0.69	0.60	0.79	0.62	0.70	0.63
3	Berezivska	0.812	0.08	0.88	0.79	0.64	0.06	6000	0.98	0.75	0.68	0.84	0.72	0.78	0.70
4	Boromlyanska	0.798	0.11	0.86	0.74	0.58	0.08	5700	0.96	0.73	0.63	0.82	0.70	0.76	0.68
5	Bochechkivska	0.721	0.15	0.78	0.67	0.51	0.11	4900	0.92	0.66	0.57	0.76	0.59	0.66	0.61

INPUT DATA FOR ASSESSING THE SUSTAINABILITY OF UTCS IN THE SUMY REGION (2023) (CONT.)

№	United Territorial Community	HDI	PR	AEH	SC	ED	UR	HI	FS	EQ	NRU	CCR	GE	RoL	CP
6	Burynska	0.835	0.07	0.90	0.82	0.67	0.05	6300	0.99	0.77	0.70	0.86	0.74	0.80	0.72
7	Verkhn.Syrovatskaya	0.763	0.13	0.81	0.70	0.56	0.10	5400	0.95	0.71	0.62	0.78	0.64	0.73	0.66
8	Vilshanska	0.807	0.09	0.87	0.77	0.62	0.07	5800	0.97	0.74	0.66	0.83	0.71	0.77	0.69
9	Grunskaya	0.851	0.05	0.92	0.84	0.71	0.04	6400	1.00	0.78	0.72	0.88	0.76	0.82	0.74
10	Druzhbivska	0.774	0.12	0.84	0.73	0.59	0.08	5600	0.96	0.72	0.64	0.81	0.68	0.78	0.59
11	Dubovyazovskaya	0.713	0.09	0.83	0.66	0.60	0.08	5500	0.88	0.67	0.63	0.80	0.68	0.74	0.67
12	Znob-Novgorodskaya	0.726	0.07	0.86	0.75	0.47	0.10	5700	0.97	0.61	0.66	0.82	0.71	0.76	0.69
13	Kirikivska	0.761	0.06	0.79	0.69	0.49	0.09	5300	0.87	0.68	0.60	0.77	0.63	0.71	0.64
14	Komyshanskaya	0.822	0.11	0.89	0.55	0.51	0.07	5900	0.99	0.65	0.69	0.84	0.73	0.79	0.71
15	Korovinskaya	0.783	0.08	0.81	0.53	0.67	0.08	5600	0.96	0.72	0.64	0.81	0.68	0.74	0.67
16	Krasnopilskaya	0.800	0.08	0.87	0.76	0.61	0.07	5800	0.97	0.74	0.66	0.83	0.70	0.77	0.69
17	Krolevetska	0.776	0.12	0.82	0.70	0.54	0.10	5400	0.94	0.69	0.61	0.79	0.65	0.72	0.65
18	Mykolaivska (Bilopilskyi district)	0.809	0.09	0.88	0.77	0.62	0.07	5700	0.97	0.73	0.66	0.83	0.71	0.77	0.69
19	Mykolaivska	0.792	0.10	0.85	0.74	0.59	0.08	5500	0.96	0.71	0.63	0.81	0.68	0.74	0.67
20	Miropilska	0.815	0.07	0.89	0.78	0.64	0.06	6000	0.98	0.75	0.68	0.84	0.72	0.78	0.70
21	Nedryhaylivska	0.764	0.13	0.81	0.70	0.56	0.10	5400	0.95	0.71	0.62	0.78	0.64	0.73	0.66
22	Nyzhnosyrovatska	0.781	0.11	0.83	0.72	0.57	0.09	5600	0.96	0.72	0.63	0.81	0.68	0.74	0.67
23	Novoslobidska	0.798	0.08	0.86	0.74	0.60	0.07	5800	0.97	0.74	0.66	0.83	0.70	0.77	0.69
24	Stepanivska	0.813	0.07	0.88	0.77	0.63	0.06	6000	0.98	0.75	0.68	0.84	0.72	0.78	0.70
25	Trostyanetska	0.767	0.12	0.82	0.70	0.55	0.09	5400	0.95	0.71	0.62	0.78	0.64	0.73	0.66
26	Khotinskaya	0.801	0.08	0.87	0.75	0.60	0.07	5800	0.97	0.74	0.66	0.83	0.70	0.77	0.69
27	Chernechchinskaya	0.776	0.12	0.82	0.71	0.54	0.10	5500	0.94	0.69	0.61	0.79	0.65	0.72	0.65
28	Chupakhivska	0.789	0.10	0.84	0.73	0.58	0.08	5600	0.96	0.72	0.63	0.81	0.68	0.74	0.67
29	Shalyginskaya	0.806	0.07	0.88	0.77	0.63	0.06	6000	0.98	0.75	0.68	0.84	0.72	0.78	0.70
30	Shostkinskaya	0.759	0.13	0.81	0.69	0.56	0.10	5400	0.93	0.68	0.60	0.77	0.64	0.71	0.6

Appendix B

ESTIMATED DATA OF ASSESSMENT OF THE USE OF ONLINE PLATFORMS OF RURAL AND DONATION-TOURISM OF SUMY REGION (2023)

№	United Territorial Community	CR	AOV	ROI	CSR	AC	EI	PL	TS
1	Andriyashivska	4.2	500	15	85	50	2.1	70	80
2	Bilopilska	3.5	550	14	80	55	2.0	65	75
3	Berezivska	4.0	600	16	87	60	2.2	72	82
4	Boromlyanska	3.8	520	15	83	52	2.1	68	78
5	Bochechkivska	3.0	470	12	77	47	1.8	62	70
6	Burynska	4.5	650	18	90	65	2.3	75	85
7	Verkhnyaya Syrovatskaya	3.6	530	14	81	53	2.0	66	76
8	Vilshanska	4.3	620	17	88	62	2.4	73	83
9	Grunskaya	5.0	700	20	92	70	2.5	78	88
10	Druzhbivska	4.1	540	16	85	54	2.2	69	81
11	Dubovyazovskaya	3.9	510	15	84	51	2.1	67	79
12	Znob-Novgorodskaya	4.2	580	17	86	58	2.3	71	82
13	Kirikivska	3.7	500	14	82	50	2.0	65	75
14	Komyshanskaya	4.4	630	18	89	63	2.4	74	84
15	Korovinskaya	4.1	550	16	85	55	2.2	69	81
16	Krasnopilskaya	4.3	600	17	87	60	2.3	72	83
17	Krolevetska	3.9	530	15	84	53	2.1	67	79
18	Mykolaivska (Bilopilskyi district)	4.3	620	17	88	62	2.3	73	83
19	Mykolaivska	4.0	580	16	86	58	2.2	71	81
20	Miropilska	4.4	640	18	89	64	2.4	74	84
21	Nedryhaylivska	3.8	550	15	84	55	2.1	68	79
22	Nyzhnosyrovatska	4.1	590	16	85	59	2.2	70	81
23	Novoslobidska	4.3	600	17	87	60	2.3	72	83
24	Stepanivska	4.2	610	17	86	61	2.3	71	82
25	Trostyanetska	3.7	530	14	82	53	2.0	65	75
26	Khotinskaya	4.2	590	17	86	59	2.3	70	82
27	Chernechchinskaya	3.8	540	15	84	54	2.1	66	78
28	Chupakhivska	4.0	570	16	85	57	2.2	68	80
29	Shalyginskaya	3.8	550	15	84	55	2.1	67	79
30	Shostkinskaya	3.5	530	14	82	53	2.0	65	75

Appendix C

RESULTS OF THE SUSTAINABILITY ASSESSMENT OF THE UTCS OF THE SUMY REGION OF UKRAINE (2023)

№	United Territorial Community	SS	EnS	EcS	IS	ISRC
1	Andriyashivska	0.751	0.603	0.728	0.724	0.703
2	Bilopilska	0.717	0.551	0.681	0.693	0.677
3	Berezivska	0.807	0.632	0.745	0.766	0.749
4	Boromlyanska	0.774	0.598	0.723	0.731	0.711
5	Bochechkivska	0.688	0.531	0.649	0.656	0.622
6	Burynska	0.832	0.661	0.767	0.785	0.762
7	Verkhnyaya Syrovatskaya	0.731	0.567	0.705	0.718	0.684
8	Vilshanska	0.820	0.860	0.770	0.770	0.810
9	Grunskaya	0.880	0.940	0.820	0.800	0.860
10	Druzhbivska	0.777	0.870	0.740	0.730	0.780
11	Dubovyazovskaya	0.750	0.820	0.730	0.720	0.770
12	Znob-Novgorodskaya	0.780	0.910	0.790	0.750	0.810
13	Kirikivska	0.740	0.820	0.720	0.710	0.760
14	Komyshanskaya	0.840	0.920	0.810	0.780	0.850
15	Korovinskaya	0.780	0.870	0.740	0.730	0.780
16	Krasnopilskaya	0.820	0.910	0.790	0.750	0.810
17	Krolevetska	0.770	0.860	0.750	0.720	0.780
18	Mykolaivska (Bilopilskyi district)	0.820	0.860	0.770	0.770	0.810
19	Mykolaivska	0.800	0.850	0.750	0.730	0.780
20	Miropilska	0.840	0.920	0.800	0.780	0.850
21	Nedryhaylivska	0.760	0.880	0.760	0.730	0.790
22	Nyzhnosyrovatska	0.780	0.870	0.750	0.730	0.780
23	Novoslobidska	0.820	0.860	0.770	0.770	0.810
24	Stepanivska	0.813	0.880	0.770	0.770	0.810
25	Trostyanetska	0.767	0.820	0.730	0.720	0.770
26	Khotinskaya	0.801	0.870	0.770	0.750	0.810
27	Chernechchinskaya	0.776	0.820	0.730	0.720	0.770
28	Chupakhivska	0.789	0.840	0.732	0.718	0.749
29	Shalyginskaya	0.772	0.828	0.739	0.727	0.671
30	Shostkinskaya	0.745	0.833	0.742	0.723	0.598

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Liudmyla Dorokhova: Data Curation.
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Oleksandr Dorokhov: Conceptualization, Validation.
Valentyna Yatsenko: Analysis.
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THE IMPORTANCE OF INNOVATION IN THE CZECH AND SLOVAK SPA INDUSTRY: THE COVID-19 ERA AND BEYOND

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Znaczenie innowacji w przemyśle spa w Czechach i na Słowacji: Era COVID-19 i później

Streszczenie

Celem niniejszego badania jest analiza zakresu, struktury i odczuwanych korzyści innowacji wdrożonych przez przedsiębiorstwa uzdrowiskowe w Czechach i na Słowacji w okresie obejmującym fazę przed COVID-19, pandemię i po pandemii (2018–2022). Podstawą badania były ankiety, w których udział wzięły placówki spa, w tym właściciele spa, dyrektorzy generalni, kierownicy finansowi, kierownicy ds. marketingu, kierownicy ds. innowacji/rozwoju i kierownicy ds. relacji z klientami. W wynikach pokazujemy rozwój czterech typów innowacji poprzez porównanie między Czechami i Słowacją. Dynamiczne zmiany w zakresie innowacji można było zauważyć zwłaszcza w roku wybuchu epidemii COVID-19 lub w fazie po pandemii. Szczególnie znaczący spadek zaobserwowano w zakresie innowacji produktowych. Z kolei innowacje organizacyjne wzrosły podczas wybuchu epidemii COVID-19, a innowacje marketingowe odnotowały znaczny wzrost po wybuchu epidemii COVID-19. Również innowacje na Słowacji wydają się być bardziej dynamiczne niż w Czechach. Głównymi przeszkodami we wprowadzaniu innowacji w zakładach uzdrowiskowych są bariery finansowe i ekonomiczne, jednak nie wszystkie zakłady korzystają z możliwości dotacji. Choć innowacje w zakładach uzdrowiskowych wiążą się z wyższymi kosztami i, o dziwo, nawet nie zwiększają wydajności pracy, to w rezultacie przynoszą wyższą jakość usług i wyższe dochody.

Słowa kluczowe: innowacje marketingowe, innowacje organizacyjne, innowacje produktowe, innowacje technologiczne, turystyka uzdrowiskowa.

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Abstract

This study aims to analyze the scope, structure, and perceived benefits of innovations implemented by spa businesses in the Czech Republic and the Slovak Republic over a period spanning the pre-COVID-19, pandemic, and post-pandemic phases (2018–2022). The basis of the study was a questionnaire survey, in which spa establishments were approached, including spa owners, general directors, financial managers, marketing managers, innovation/development managers, and customer relations managers. In the results, we show the development of four types of innovation with a cross-country comparison between the Czech Republic and the Slovak Republic. Dynamic innovation changes could be noted in the year of the outbreak of COVID-19 or in the post-pandemic phases. A significant drop in product innovations was observed. Conversely, organizational innovations increased during the COVID-19 outbreak, while marketing innovations experienced a significant increase after the COVID-19 outbreak. Innovations in the Slovak Republic appear to be more dynamic than in the Czech Republic. The obstacles to the introduction of innovations in spa establishments are financial and economic barriers, but not all establishments use the possibility of subsidies. Although innovations in spa establishments mean higher costs and, surprisingly, do not increase labor productivity, they bring a higher service quality and higher incomes.

Keywords: marketing innovations, organizational innovations, product innovations, technological innovations, spa tourism.

Introduction

The spa industry forms an important part of the health system of many European countries. It is a healthcare field based on the scientific knowledge of balneology and other medical fields. The spa industry also includes spa tourism, which is part of the broader wellness tourism (Šenková, 2021). The spa treatment is based on four natural healing sources, namely healing waters, peloids, climate, and gases. Treatment methods have evolved over many centuries, and some of them are still used today. For example, in the German spa industry, there are the Kneipp, Felke, and Schroth methods. The tradition of hydrotherapy, of which Vincenz Priessnitz is the world-renowned founder, is maintained in the Czech spa industry. Although these methods are applied with regard to the latest scientific findings and are still considered effective, one must perceive the stormy development of modern medicine, which can treat a number of diseases faster, more efficiently, and oftentimes cheaper than classical spa treatments. However, in addition to their health function, spas also have considerable economic, environmental, socio-cultural, and regional importance (Attl, 2014). Many authors discuss the health benefits of spas, for example, Jakubíková, Vildová, Janeček, and Tlučhoř (2019), Fernandez-Gonzales, Fernandez--Lao, Martin, Gonzalez-Santos, Lopez-Garzon, Ortiz-Comino, and Lozano-Lozano (2021), Clark-Kennedy, Kennedy, Cohen, and Conduit (2021) and others. Among the basic macroeconomic indicators that are monitored when evaluating the economic benefits of spas and spa tourism, we can include the share of tourism

in the gross domestic product (GDP), its share in the balance of payments, and its impact on employment (Jakubíková, Vildová, Janeček, and Tlučhoř, 2019). Generally speaking, the share of the spa industry in the macroeconomic indicators of the Czech Republic and the Slovak Republic is low. In addition to the positive economic effects of tourism, some authors also describe its negative effects. The most recent research highlights the particularly negative effect of climate change (Szromek and Polok, 2022). Among the most well-known negative economic effects are ancillary costs, economic leakages, economic dependence on tourism, the creation of tourist enclaves (ghettos), tourist inflation, infrastructure costs, the negative character of employment and seasonality.

Spas are also an important form of tourism, which is supported in terms of marketing by destination management organizations both in the Czech Republic and in the Slovak Republic (Jakubíková, Vildová, Janeček, and Tlučhoř, 2019; Derco, 2020). In both countries, spas are considered a key tourism product. Spa support is not only provided in the form of marketing support but also as investment, financial, and legislative support.

Spas in the Czech Republic and the Slovak Republic have undergone a stormy development in recent years. The COVID-19 pandemic, which affected the entire European spa industry, had an absolutely fundamental impact. This issue has been addressed by a number of authors in the Czech Republic (Attl and Pátek, 2021), in the Slovak Republic (Šenková, Košíková, Matušíková, Šambronská, Kravčáková Vozárová, and Kotulič, 2021), in Europe (Marco-Lajara, Ruiz-Fernández, Seva-Larrosa, and Sánchez-García, 2019; Pinos Navarrete and Shaw, 2021), and in the world (Choudhary and Qadir, 2021). In Czech and Slovak spas, the coronavirus pandemic led to a substantial decrease in spa attendance and a change in the structure of guests (Attl and Pátek, 2021). After many years, locals prevailed over foreigners in Czech spas, and self-payers quickly began to replace patients of health insurance companies. The Czech Republic's economic problems have been at least partially addressed by state authorities, with the most significant support being the introduction of so-called spa vouchers. As soon as the worst period of the coronavirus pandemic ended in 2021, other negative phenomena occurred in 2022, which were reflected in the Czech and Slovak spa industry. The international political situation associated with the refugee crisis significantly worsened. This was gradually followed by the energy crisis and the associated economic and financial crisis.

Spa establishments had to react quickly to this situation, as they were threatened not only with the loss of competitiveness but often even with the loss of their very existence. Increased innovation activity was one of the main ways to counter the negative impacts. This was also the case for spa establishments in the Czech and Slovak Republics. Our study is also based on this situation. It aims to analyze the scope, structure, and perceived benefits of innova-

tions implemented by spa businesses in the Czech Republic and the Slovak Republic over a period spanning the pre-COVID-19, pandemic, and post-pandemic phases (2018–2022). The subject of the research is the application of innovations in individual spa locations and spa establishments, both in the operational area, which includes management and organization of work and the application of new technologies and techniques, as well as in the area of product offer and marketing communication.

Literature review

Innovation

The definition of the term innovation is different and unambiguous for different authors, and there is no definition of this term accepted by all. The first to create the economic concept of innovation was the Austrian economist Schumpeter, a native of Třešť in Vysočina. Schumpeter (1987) described innovation as one of five possible changes. This is the presentation of new goods - completely new or of better quality for customers; the introduction of a new production method, which does not mean only a new technology, but a new way of dealing with commodities and their commercial use; opening up to a new market, which does not mean only a new and currently non-existent market, but also existing markets that companies have not yet discovered and entered; acquiring a new source of supply with material or semi-finished products. From the word base coming from Latin (lat. *innovare* = to renew), it is clear that innovation represents some kind of change, renewal, or novelty. Although the original definition of innovation can still be considered valid, new fields emerging today are trying to conceptualize it, for example, in the field of digital phenomena (Hund, Wagner, Beimborn, and Weitzel, 2021).

Innovation can be a source of competitive advantage for establishments, either through improving methods and techniques capable of generating new products and services or by improving existing ones (Taques, López, Basso and Areal, 2021). In order to understand innovations, their comprehensive perception is important. As Kahn (2018) points out, innovation is three different things: innovation is an outcome, innovation is a process, and innovation is a way of thinking. According to Keller and Bieger (2005, p. 190), "innovation cannot be considered only as a creative force in the market to be reckoned with, but also as an available entrepreneurial resource, keeping in mind the spatial dimension of the destination."

According to Valenta (2001), the general characteristics of innovation are summarized in the following six points - innovation is a deliberate and beneficial

change of the current state; the change must find practical application and must be new (at least in the establishment); the subject of changes are products, services, production processes; the result of implemented changes must be of technical, economic or societal benefit; innovations become the bearer of technical development if they bring an economic effect; and innovations require certain technical, market, economic and psychological knowledge and skills of workers. For about twenty years, the concept of open innovation has been developing in the world (Bigliardi, Ferraro, Filippelli, and Galati, 2021; Szromek, Kruczek, Walas, and Polok, 2023). Open innovation is such innovation where the customers and end users themselves actively participate in the innovation of the product or service. They are the ones who share their ideas for product innovation with the company in order to solve their problems or wishes. This leads to a situation where external and internal ideas are combined to create innovations, or internal and external solutions capable of reaching a new market. This concept could be interesting and promising for the spa industry as well. The concept of open innovation has made it possible to achieve and implement innovations even for those establishments for which they were previously unattainable for various reasons (Szromek, Kruczek, Walas, and Polok, 2023).

The starting point for the formulation of the Innovation Strategy of the Czech Republic (2019) was the definition of innovation as understood by the European Commission: Innovation is the renewal and expansion of the range of products and services and their associated markets; the creation of new methods of production, supply, and distribution; the introduction of management changes; organization of work, working conditions and qualifications of the workforce.

Just as the definition of the concept of innovation is differentiated, the division of innovations into individual groups is also very diverse. The simplest division of innovations is probably contained in the Oslo Manual (OECD, 2018), where innovations are classified into two groups, technical and non-technical innovations. Gault (2018) presents the division of innovations in services and the public sector into six basic groups, which are 1. service innovations, 2. service delivery innovation, 3. administrative or organizational innovation, 4. conceptual innovation, 5. policy innovation, 6. system innovation. Dieffenbacher, Hüttinger, Zaninelli, Lines, and Rein (2009) use a model for breaking down innovations based on a matrix in which they are measured on the horizontal axis of technology (existing and new) and on the vertical axis of the market (again as existing and new). Based on this, they divide innovations into four groups: 1. architectural innovations, 2. radical innovation, 3. incremental innovation, and 4. disruptive innovations.

Valenta (2001) created a hierarchy of innovations in which innovations are divided into four phases (the first without a name, the second = rationalization,

the third qualitative = innovation, the fourth = technological revolution) and 11 orders. Another criterion for segmentation is their division into indicators that directly or indirectly affect the success of investments (Dziallas and Blind, 2019). Patents and the research and development budget are considered as examples of indicators that indirectly evaluate innovation. Indicators such as the number of new ideas, the percentage of ideas with potential for commercialization, or the number of products sold are then ranked as direct indicators (Dewangan and Godse, 2014). For the purposes of the study, we were based on the division of innovations into technological, product, marketing, and operational.

Innovation in tourism and spa

One of the specific areas in which innovations are currently being applied very quickly is the tourism sector and the hotel industry. A common feature of innovation in the tourism sector is the understanding of innovation as certain changes related to renewal, improvement, transition to a new state, implementation of new ideas, and introduction of new solutions to a certain problem (Gúčik, 2012). Bilgihan and Nejad (2015, p. 46) state that "innovative technologies and business models have revolutionized the hospitality and tourism industry."

The spa industry is characterized by the existence of a so-called natural monopoly, which consists of the exploitation of site-specific natural resources. These represent the spa's primary competitive advantage. Since ancient times, water has been the gold of modern times, and therefore, the use of thermal water is a logical step in the spa industry (Rodek, Máhr, and Birkner, 2020). Smith, Jancsik, and Puczko (2020) based their study on the level of spa services in post-socialist countries on the fact that innovation is a necessary means to increase competitiveness and improve service quality and customer experience and satisfaction. These innovations mainly include infrastructure development, modernization, and regeneration of spa establishments (Zizlavský and Fisher, 2021).

However, even the existence of a natural monopoly does not mean that spas can do without innovation. On the contrary, the innovation process is a natural part of the development of spa establishments, and this process has been accelerated and intensified by external conditions (Hjalager, 2010; Hjalager, 2015). Innovation in the spa industry is a less frequent topic in scientific papers, and we can distinguish two basic approaches to their investigation. The first is the medical field, which focuses primarily on the development of innovations in treatment methods and procedures, as well as the use of new technologies and treatment processes. The second approach is based on the understanding of the spa industry as a form of tourism (Sipe, 2018). From this perspective, the research is mainly focused on innovations in the product offer of spa tourism and innovations in marketing communication. Important in the context of marketing inno-

vations is the integration of spas into spa destinations and cooperation with destination management organizations (Panasiuk, Panfiluk, and Szymańska, 2016).

Another application of innovations in the spa industry can be considered the introduction of completely new spa destinations, such as Malaysia, targeting mainly Muslim clientele with the concept of a "Muslim-friendly spa" (Azman, Kamarudin, and Ali, 2025). In terms of target segments, the focus may extend beyond non-traditional clientele to also include the application of innovative approaches for traditional clientele. For instance, Patterson and Balderas-Cejudo (2022) emphasize the growing interest in spa and wellness tourism among the Baby Boomer generation, not only because of the treatment procedures but especially due to the social and psychological aspects, including the induction of positive emotions during socialization.

The current innovation activities are based on basic strategic documents focused on innovation. In the Czech Republic, this is the Innovation Strategy of the Czech Republic 2019-2030 (2019), while in the Slovak Republic, the basic strategic document is the National research, development, and innovation strategy. Innovation trends are also part of the strategic documents of the tourism sector. In the Czech Republic, this is the Tourism development strategy of the Czech Republic 2021-2030 (2021), while in the Slovak Republic, a similar document is still under preparation. The importance of innovation for the spa industry is evidenced at the European level by the Innovation Award, which is awarded annually by the European Spa Association (ESPA) in eight categories. Spa companies from the Czech Republic are among the winners.

Methods

The CAWI online survey method was used for data collection. Using a questionnaire survey, primary data was obtained in the field. Part of the questionnaire investigation was the so-called pre-research, during which the appropriateness of the compiled semi-structured questionnaire was verified. As part of preliminary research, three spa establishments in the Czech Republic and three spa establishments in the Slovak Republic were approached. Part of the pre-research was a guided interview held in the Třeboň spa, which was used to verify the comprehensibility of the questionnaire.

The selection set consists of all spa establishments in the Czech Republic and the Slovak Republic.[1] Among the respondents, two groups predominated,

[1] Although some studies point to a looser use of the term “spa” (Mihók and Marčeková, 2022), it is important to mention that our study only deals with spa as a narrowly defined part of wellness (which is in line with the approach of Šenková, 2021). Places that can bear the spa designation in the Czech Republic are precisely limited by Act No. 164/2001 Coll., according to which the presence of a natural healing source and medical personnel is a necessary condition.

namely medium-sized enterprises (fewer than 250 but more than 50 employees), of which there were 22 (48.88%), and small enterprises (fewer than 50 but more than 10 employees), which counted 20 (44.44%). Specifically, there are 92 spa establishments[2] in the Czech Republic, which are located in 35 spa locations[3] (Table 1 with n_t for total and n_r for relative counts of spa establishments; n = 92). In most spa locations, there is only one spa establishment. Most of the establishments are located in Karlovy Vary (27), Františkovy Lázně (18) and in Mariánské Lázně (8). The sample includes establishments with different forms of ownership - predominantly commercial companies (limited liability companies or joint stock companies), but there are also establishments operated by state institutions. Some commercial companies are municipally owned (Třeboň, Hodonín). The database of spa establishments and spa sites is taken from the Czech Inspectorate of Spas and Spa Facilities (ČIL).

Table 1
Spa places and number of spa establishments in the Czech Republic

Spa location	n_t	n_r (n = 92)	Spa location	n_t	n_r (n = 92)
Bechyně	1	1.09%	Lázně Kynžvart	1	1.09%
Bludov	1	1.09%	Lázně Libverda	1	1.09%
Buchlovice	1	1.09%	Lednice	2	2.17%
Františkovy Lázně	18	19.57%	Lipová-lázně	1	1.09%
Hodonín	1	1.09%	Luhačovice	4	4.35%
Jáchymov	1	1.09%	Mariánské Lázně	8	8.70%
Janské Lázně	1	1.09%	Mšené-lázně	1	1.09%
Jeseník	1	1.09%	Ostrožská Nová Ves	1	1.09%
Karlova Studánka	1	1.09%	Poděbrady	3	3.26%
Karlovy Vary	27	29.35%	Slatinice	1	1.09%
Karviná-Darkov	1	1.09%	Teplice n. Bečvou	1	1.09%
Klášterec nad Ohří	1	1.09%	Teplice	2	2.17%
Klimkovice	1	1.09%	Toušeň	1	1.09%
Konstantinovy Lázně	1	1.09%	Třeboň	1	1.09%
Kostelec u Zlína	1	1.09%	Velichovky	1	1.09%
Lázně Bělohrad	1	1.09%	Velké Losiny	1	1.09%
Lázně Bohdaneč	1	1.09%	Vráž	1	1.09%
Lázně Kundratice	1	1.09%			

Note: n_t total counts; n_r relative counts. Source: own processing of data from the Czech Inspectorate of Spas and Baths (ČIL), 2023.

[2] Some businesses have establishments in multiple spa locations.
[3] Three spa sites in the Czech Republic (Běloves, Bílina, Dubí) are currently inoperative.

Furthermore, 27 spa establishments in the Slovak Republic were approached, offering their services in 22 spa locations[4] (Table 2). The database of spa establishments and spa places is taken from the documents of the Association of Slovak Spas. The concentration of spa establishments is significantly smaller in the Slovak Republic than in the Czech Republic. Most of the spas are located in the High Tatras region. In most cases, these are commercial companies and, in a few cases, establishments of state institutions.

A total of 47 responses were recorded (return rate 40.00%), two of which were discarded from the final set as erroneous or incompletely filled-in questionnaires. The responses were collected under the promise of maintaining respondent anonymity. Among 47 participating spa establishments, the respondents included 4 owners (stakeholders), 5 managers from the customer relations department, 5 managers from the innovation/development department, 15 CEOs (general directors), and 18 managers from the marketing department. The research focused on the five-year period 2018-2022 and thus included the precovid period as well as the period of the coronavirus pandemic, and the immediate post-pandemic phase. The survey was conducted between August 18, 2023, and November 12, 2023 (data collection period), using the extended (paid) version of the Survio platform for the questionnaire. The questionnaire was divided into four basic areas – general characteristics of the spa establishment, innovation as a tool for increasing competitiveness, measurement of innovative ability/performance, and the possibility of applying innovation in the spa establishment. In particular, the questionnaire consisted of 27 questions. The first 18 questions contained the actual research on innovation activities. The remaining questions were the identification set and served to create the basic characteristics of individual spa establishments.

Table 2
Spa places and the number of spa establishments in the Slovak Republic

Spa location	n_t	n_r (n = 27)	Spa location	n_t	n_r (n = 27)
Bardějov	2	7.41%	Nimnica	1	3.70%
Bojnice	1	3.70%	Piešťany	2	7.41%
Brusno	1	3.70%	Rajecké Teplice	1	3.70%
Bystrá	1	3.70%	Sklené Teplice	1	3.70%
Červený Kláštor	1	3.70%	Sliač	1	3.70%
Číž	1	3.70%	Smrdáky	1	3.70%
Dudince	1	3.70%	Štós	1	3.70%
Kováčová	1	3.70%	Trenčianské Teplice	1	3.70%

[4] Two spa sites are currently inoperative. These are Korytnice and Kunerad.

Table 2
Spa places and the number of spa establishments in the Slovak Republic (cont.)

Spa location	n_t	n_r (n = 27)	Spa location	n_t	n_r (n = 27)
Liptovský Ján	1	3.70%	Turčianské Teplice	1	3.70%
Lučivná	1	3.70%	Vysoké Tatry	4	14.81%
Lúčky	1	3.70%	Vyšné Ružbachy	1	3.70%

Note: n_t total counts; n_r relative counts. Source: own processing of data from the Association of Slovak Spas (ASK), 2023.

Statistical evaluation of the obtained data included univariate descriptive statistics, timeline analysis, and bivariate statistical analysis including statistical testing using the Kruskal-Wallis test followed by a post-hoc multiple comparison test, at multiple levels of significance. Furthermore, the method of causal research and the method of comparative analysis of spa establishments in the Czech Republic and the Slovak Republic were used.

Given the unique context of the Czech Republic (and the Slovak Republic respectively), especially with regard to the specific definition of "spa" under Act No. 164/2001 Coll., our research and its aim are exploratory in nature. There are no predictions regarding dependencies and differences between the individual periods or countries being compared. In connection with the set aim, we posed 4 research questions:

1) What was the development in the number and type of innovations in spa establishments in the Czech Republic and the Slovak Republic in 2018-2022?
2) How did the development in the number and type of innovations in the spa establishment differ in 2018-2022 depending on the countries, i.e., the Czech Republic and the Slovak Republic?
3) What was the structure of the innovations carried out in spa establishments in the Czech Republic and the Slovak Republic in 2018-2022, in terms of specific innovations, implementation barriers, and financing?
4) What benefits are perceived as the most and the least important after the introduction of innovations in 2018-2022 in spa establishments in the Czech Republic and the Slovak Republic?

Results

The research on spa facilities in the Czech Republic and the Slovak Republic focused on finding answers to several questions. The first research question we sought to answer was "What was the development in the number and type of innovations in spa establishments in the Czech Republic and the Slovak Republic in the period of 2018-2022?" (Figure 1). The results show that while product

innovations were dominant in 2018 and 2019, these innovations fell to the lowest value of all types of innovation in the COVID-19 year of 2020 and were no longer the most numerous in the following years either. On the contrary, technical and technological innovations, which were already on the rise in 2019, assumed a dominant share in the COVID-19 year of 2020 and remained in a very good position in 2021 and 2022. Organizational innovations recorded lower values for a long time, except in 2020 when their share increased slightly. It is important to underline that in the last two years, however, marketing innovations have had a leading position.

Overall, the timelines can therefore be divided into three periods: 1) pre-covid with the dominant position of product innovation, 2) covid with the dominant position of technological innovation, and 3) post-covid with the dominant position of marketing innovation. When comparing the initial period of 2018 and the final period of 2022, it can be argued that all innovations, except product innovations, recorded an increase in number.

If we look at the prediction for 2024 - the planned innovations on the minor axis of Figure 1 - it can be argued that the planned organizational innovations will not be fundamentally different in terms of proportions compared to 2022. They should continue to be the least used innovations, with only 11 establishments planning to introduce them (24.40% of all establishments). The remaining three types of innovation, i.e., product, technological, and marketing, should be significantly more represented in terms of proportions in 2024. Marketing innovations are planned to be introduced by 26 spa establishments (57.80% of all establishments), which also corresponds to their high popularity in 2022. On the other hand, compared to the current development in 2022, a proportional increase is expected, especially for technological innovations, which are planned to be introduced by 27 spa establishments (60.00% of all establishments), and for product innovations planned to be introduced by 29 spa establishments (64.4% of all establishments). Thus, for the first time since the COVID-19 year of 2020, the frequency of product innovations is expected to surpass the number in 2018.

Overall, it can be said that product and marketing innovations seem to be the most dynamic in growth, or decline and subsequent growth. This dynamic is apparently exacerbated by crises. In contrast, technological innovations, which seem to require a longer time horizon for implementation, are indeed transformative, but less dynamic. Organizational innovations are then the least dynamic ones.

For the establishments that introduced innovations we tried to find out, "How did the development in the number and type of innovations in the spa establishment differ in the in the period of 2018-2022 depending on the countries, i.e., the Czech Republic and the Slovak Republic?" A total of 30 spa establishments introduced the innovation, of which 76.70% were from the Czech Republic and 23.30% from the Slovak Republic. Figure 2 shows the differences in

the types of innovations and, at the same time, grouped by country, i.e., the Czech Republic and Slovak Republic.

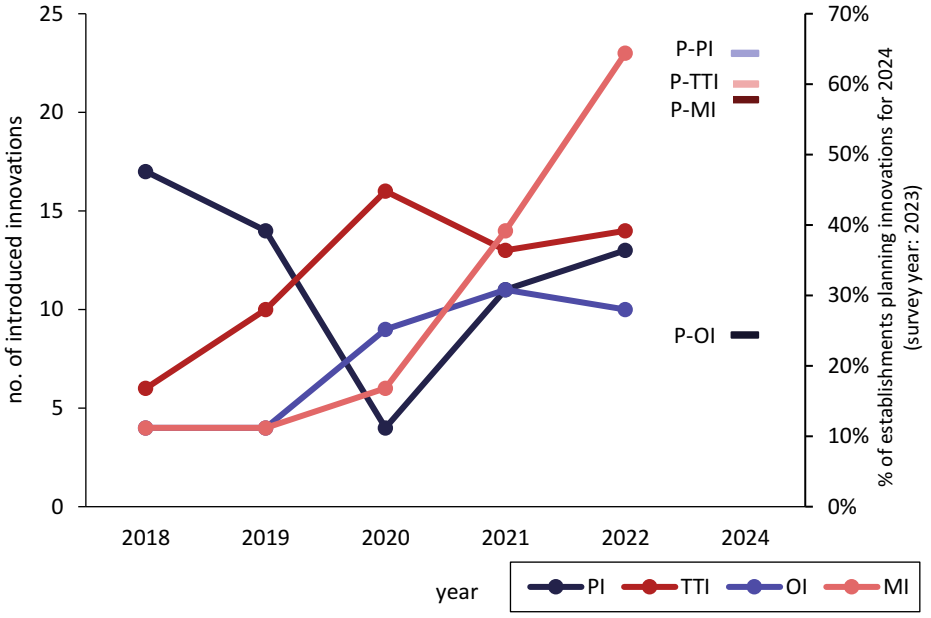

Figure 1
Basic types of innovations implemented in the period 2018-2022
Note: PI – Product innovation (improved or new product); TTI – Technical and technological innovations (new technologies, evaluation of fixed tangible assets); OI – Organizational innovation (managerial, process changes in approaches, processes or tools for managing the organization); MI – Marketing innovation (introduction of new modern ways of communication and marketing towards customers). The P-letter before these abbreviations stands for planned innovations.

In terms of product innovations, a larger share of innovating establishments can be seen in the Czech Republic in 2018 and 2019. However, there is a sharp decline in the COVID-19 year of 2020 in the Czech Republic. On the contrary, in Slovakia, there has been a significantly faster revival of product innovations since 2020. In 2022, there is an equalization for both countries. Technological innovations have similar development when comparing the two countries. A larger share of innovative establishments is evident in the Czech Republic until the landmark year 2020 when Slovakia takes the lead. Organizational innovations show a long-term stagnation in the development of the share of innovating establishments in the Czech Republic. On the contrary, in Slovakia, there was a sharp increase in them from 2019, but in 2022 they were dampened. Marketing innovations in both countries show long-term growing tendencies, while the growth can be considered faster in Slovakia than in the Czech Republic.

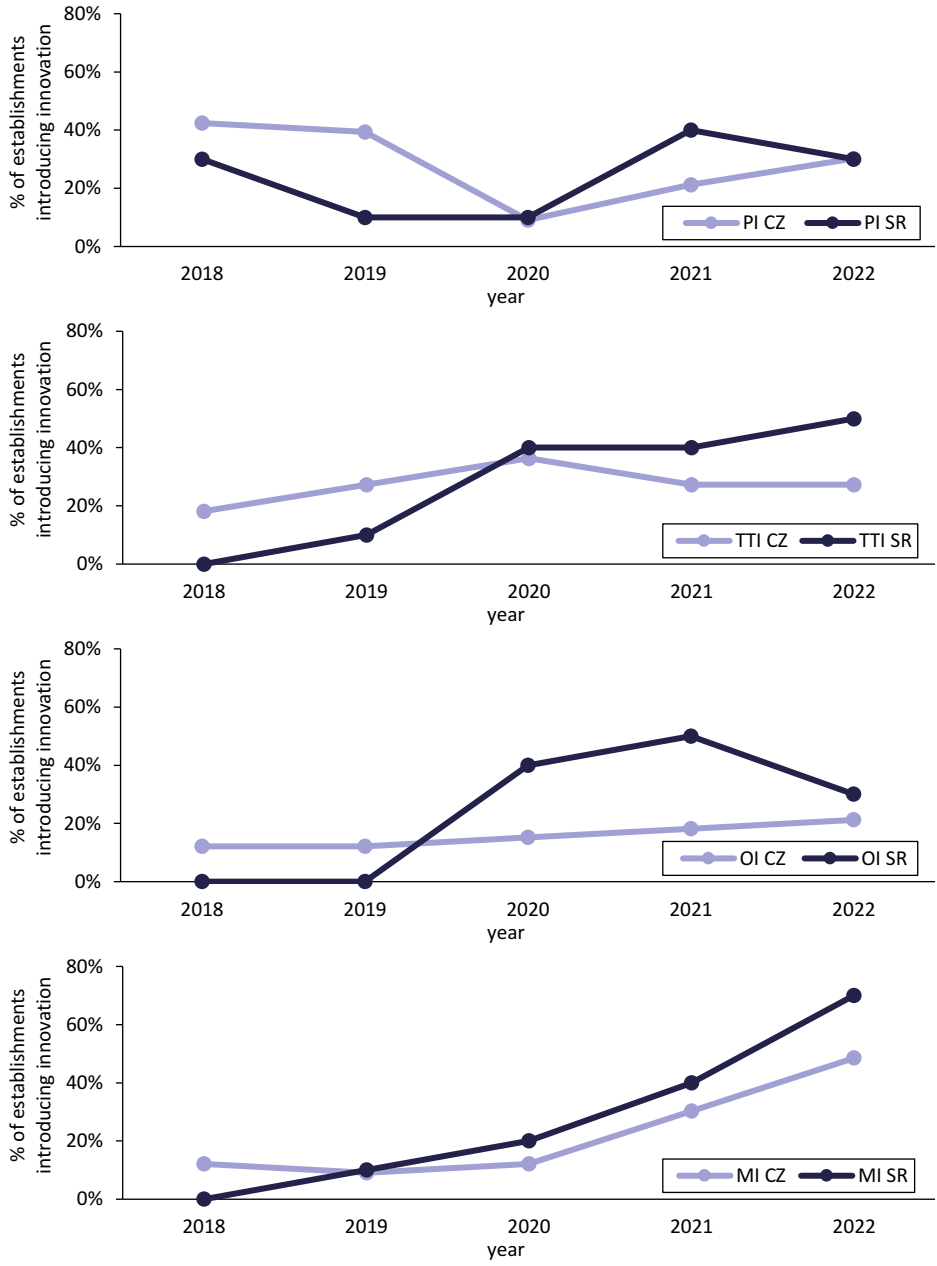

Figure 2

Trends in the introduction of innovation types - the difference between the Czech Republic and the Slovak Republic

Note: PI – Product innovation; TTI – Technical and technological innovations; OI – Organizational innovation; MI – Marketing innovation. CZ – Czech Republic; SR – Slovak Republic.

Overall, the COVID-19 year of 2020 and the period immediately after it can be considered a breakthrough, in most cases starting innovation processes. When comparing the two countries, Slovakia can be considered more dynamic, subject to sharp increases but also decreases in innovative companies. The exception to both of the above statements is the decline in product innovations in the Czech Republic in 2020, which, however, can be attributed to their high initial value.

Another part of the results aims to answer the question, "What was the structure of the innovations carried out in spa establishments in the Czech Republic and the Slovak Republic in 2018-2022, in terms of specific innovations, implementation barriers, and financing?" We analyze this issue in turn for all 4 types of innovation and for each type, we take a closer look at the more specific structure of innovation. It is important to mention that while the original categorization required the respondents to classify their innovations under one of 4 types, the following set of questions allowed the respondents to classify one innovation under multiple items. This is also why the frequency of innovations mentioned in the following section may exceed the frequency of innovations mentioned in the previous section.

The first area of investigation was product innovation in the spa industry. Here, the respondents had a choice of six types of responses (Table 3). The answers to this question did not bring any major surprises. Establishments (70.00%) continue to innovate, particularly in standard medical treatments based on the use of natural healing resources. One of the reasons for this is the possibility of applying such procedures to services that are reimbursed by health insurance companies in the Czech Republic as part of comprehensive and contributory spa care. The same is true in the Slovak Republic under so-called Mode A or Mode B health care. More than half of the respondents (60.00%) also mentioned spa wellness innovations. It is clear that spa establishments need to innovate in commercial activities (wellness, leisure stays) that are economically important to them. This situation is influenced by the low payments made by health insurance companies for insured persons who have approved spa care covered or co-financed by public health insurance. As the third most important, establishments (36.67%) mentioned innovations in post-covid treatments, which can also be connected to the revival of product innovations after 2020.

The survey clearly shows that product innovation is the most important among the four types of innovations (the highest mean value of importance). This finding is also consistent with the growing number of product innovations after 2020 and the highest expected proportion of product innovations compared to other types of innovations in 2024.

Table 3
Structure of product innovations introduced in the period 2018-2022

Structure of product innovations	**n_t**	**n_r (n = 30)**
Product focused on standard medical procedures	21	70.00%
Product focused on spa wellness	18	60.00%
Product focused on post-covid treatment	11	36.67%
Product focused on sports and recreational stays	7	23.33%
Product focused on alternative treatments	5	16.67%
Other	2	6.67%
Perceived importance of product innovations	**Rank amongst other type of innovations**	
3.3	1st	

Note: n_t total counts; n_r relative counts (a total of 30 establishments introduced product innovations).

Another area of interest was technical and technological innovations carried out in 2018-2022. The respondents had a choice of a total of five types of answers (Table 4). The most significant area of technical and technological innovation in the period 2018-2022 was the building modifications (83.33% of establishments) ranking as the most important innovation throughout all four basic types of innovations. The second most common form of technical or technological innovation was the purchase of new technologies directly related to the provision of health and spa services (56.67% of establishments). Building modifications to the external surroundings, or the spa areas surrounding the spa buildings, represent the third most frequent form of technical or technological innovation (43.33% of establishments). As the innovations connected to robotization and automation ranked as the least frequent technological innovation, it can be concluded that Czech and Slovak spa establishments still prefer working with human capital. However, it will be interesting to monitor future developments, as technological innovations are also expected to continue to grow in 2024. The high importance of technological innovations also corresponds to the fact that they were perceived by the respondents as the second most important after product innovations.

The third type of innovation which the research focused on was organizational innovation (Table 5). The possible answers were formulated very broadly (a total of 16 possible answers). Three forms of organizational innovation stand out among the answers. The most significant is the change in the organizational structure of the establishment (53.33% of establishments). The second most significant organizational innovation was a change in the management of the establishment and the associated change in managerial methods and approaches to managing the establishment (36.67% of establishments). In ten cases (33.33%

of establishments), the respondents implemented changes leading to higher work productivity. Other answers were significantly less frequent. By distance, organizational innovations were ranked as the least important among the four basic types of innovations (the lowest mean value). It also corresponds to the lowest expected proportion of organizational innovations in 2024 as well as to the least dynamic development in the timelines between 2018 and 2022.

Table 4
Structure of technical and technological innovations introduced in the period 2018-2022

Structure of technical and technological innovations	**n_t**	**n_r (n = 30)**
Building modifications to the building owned by the enterprise/organization (modernization of premises, extensions, barrier-free measures, etc.)	25	83.33%
Purchase of new technologies directly related to the provision of health and spa services	17	56.67%
Building or landscaping works to the exterior of buildings in which spa services are provided (landscaping of gardens, construction of a gazebo, outdoor rehabilitation playground, etc.)	13	43.33%
Purchase of new technologies related to savings in human labor (automation and/or robotization of internal processes)	8	26.67%
Other	0	0.00%
Perceived importance of technical and technological innovations	**Rank amongst other type of innovations**	
2.7	2nd	

Note: n_t total counts; n_r relative counts (a total of 30 establishments introduced technical and technological innovations).

Table 5
Structure of organizational innovations introduced in the period 2018-2022

Structure of organizational innovations	**n_t**	**n_r (n = 30)**
Change in the organizational structure of the company	16	53.33%
Change in the management of the company and related changes in the managerial method of approaching the management of the company (change in planning, strategic management, change in objectives, etc.)	11	36.67%
Change leading to higher labor productivity	10	33.33%
Change in additional services	9	30.00%
Change in supplier relationships	8	26.67%
Change leading to an increase in the quality of services provided (introduction of regular staff training, etc.)	8	26.67%

Table 5
Structure of organizational innovations introduced in the period 2018-2022 (cont.)

Structure of organizational innovations	**n_t**	**n_r (n = 30)**
Change in the booking system for accommodation services	8	26.67%
Change in customer relationships	7	23.33%
Change or modernization of internal systems (communication, financial, control), etc.	7	23.33%
Change in the system and process of planning procedures	5	16.67%
Change in food service processes (e.g. ordering methods, rotation of clients in dining rooms, etc.)	5	16.67%
Change in the offer and provision of cultural and social services	5	16.67%
Introduction of outsourcing (cleaning, accounting, IT management, etc.)	3	10.00%
Change in the system of communication with partners (insurance companies, travel agencies, etc.)	3	10.00%
Change leading to differentiation of traditional spa programs from wellness programs	2	6.67%
Other	0	0.00%
Perceived importance of organizational innovations	**Rank amongst other type of innovations**	
1.5	4^{th}	

Note: n_t total counts; n_r relative counts (a total of 30 establishments introduced organizational innovations).

For marketing innovations, respondents could choose from five types of responses (Table 6). The most frequent was the change in marketing communication, which was implemented by 73.33% of spa establishments. The result is not surprising, as the field of marketing communication is generally undergoing rapid development. The second most frequent response was reaching out to new markets (63.33% of establishments). It is, firstly, a matter of finding new segments geographically, as there have been significant changes in inbound tourism as a result of both the coronavirus pandemic and changes in the international political and security situation. The change in pricing policy was mentioned by 40.00% of spa establishments. Surprisingly, marketing innovations were ranked as the third most important ones, however, they were the most prominent in 2022, and are still expected to prevail with a high proportion in 2024.

Table 6
Structure of marketing innovations introduced in the period 2018-2022

Structure of marketing innovations	**n_t**	**n_r (n = 30)**
Change in marketing communication	22	73.33%
Reaching new markets	19	63.33%
Changing pricing policy	12	40.00%
Changing the way products are distributed	10	33.33%
Other	0	0.00%
Perceived importance of marketing innovations	**Rank amongst other type of innovations**	
2.5	3rd	

Note: n_t total counts; n_r relative counts (a total of 30 establishments introduced marketing innovations).

It was also important for us to observe the possibilities of public funding of innovation activities and perceived barriers when implementing the innovations (Table 7). Also in this case, the respondents could choose more than one answer as they could use more funding options for one innovation, or they could see more barriers at a time. In terms of public funding, national subsidies ranked first, used by 46.67% of spa establishments, while European subsidies were the second most used source of funding at 26.67%. Interestingly, no subsidies were used by 11.11% of spa establishments.

Table 7
Use of public funding to support innovation and perceived barriers limiting the innovation activities of establishments

Type of public funding	**n_t**	**n_r (n = 30)**
National subsidies	21	46.67%
European subsidies	12	26.67%
National subsidies (excluding COVID-19 pandemic support)	5	11.11%
Regional innovation vouchers	2	4.44%
Other regional funding	1	2.22%
Municipal subsidies	1	2.22%
Other	2	4.44%
Type of barrier	n_t	n_r (n = 30)
Financial barriers - lack of financial resources	30	66.67%
Economic barriers - inflation and high interest rates, unavailability of credit, inability to obtain subsidies	30	66.67%
Political and security barriers - uncertainty about future market developments, etc.	16	35.56%

Table 7
Use of public funding to support innovation… (cont.)

Type of public funding	n_t	n_r (n = 30)
Lack of support from public authorities (state and local government)	9	20.00%
Technological barriers - the impossibility of introducing certain technologies	7	15.56%
Other	4	8.89%
"I don't perceive any barriers"	0	0.00%

Note: n_t total counts; n_r relative counts.

The respondents identified two barriers as the most important ones, namely financial and economic. In both cases, 66.67% of establishments stated this was the case. Political and security barriers were mentioned as the third largest barrier by 35.56% of establishments. These barriers cause uncertainty about the future development of the market, the sector, etc. Less frequent barriers as insufficient support from public authorities or technological barriers were also mentioned. If the respondents indicated that they saw other barriers, these were insufficient human resources and organizational barriers. An important outcome from the responses obtained is that none of the respondents thought that there were no barriers. Since the respondents could identify more than one barrier, the top two most frequently identified barriers were financial in the form of lack of financial resources, and economic barriers in the form of external influences such as inflation rates, high interest rates, unavailability of credit, inability to obtain subsidies, etc.

The fourth part of the results deals with the question, "What benefits are perceived as the most and the least important after the introduction of innovations in 2018-2022 in spa establishments in the Czech Republic and the Slovak Republic?" When comparing the benefits brought by innovation to the establishment graphically (Figure 3) and statistically (Table 8), it is clear that there is a statistically significant difference between the individual types of benefits ($H = 44.29$; $p < 0.01$). The highest benefit is achieved for "quality of service" and "increase of sales" criteria. On the other side of the spectrum, the benefits with the lowest value are "reduction of costs", "increased labor productivity", and "increase in the efficiency of the company's processes". The perception of the significance of these benefits differed statistically significantly – specifically, all three benefits with the lowest value differed from "quality of service" ($p < 0.01$). Even the second in order, i.e., "increase of sales" was statistically significantly different from "reduction of costs" ($p = 0.01$), indicating the lowest value of all for "reduction of costs". For the two criteria rated as most beneficial, there was also the greatest agreement (with the lowest standard deviation) in ratings. On the other hand, the most contradictions in the evaluation were about the "gaining a new market" criterion. The potential for further, more detailed research can thus be seen in this case.

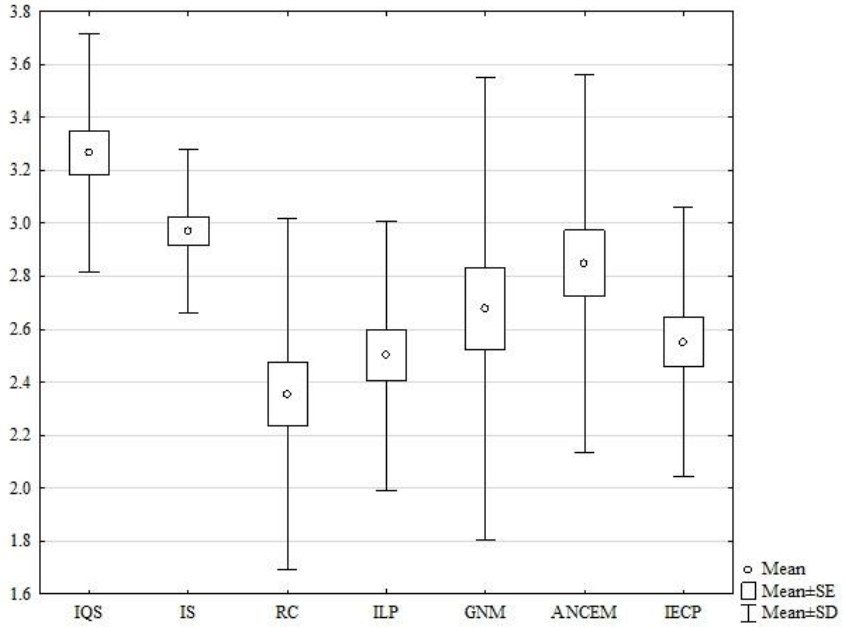

Figure 3
Degree of benefits brought by innovation to the establishment
Note: IQS – Increasing the quality of service; IS – Increase in sales; RC – Reduction of costs; ILP – Increase labor productivity; GNM – Gaining a new market; ANCEM – Acquiring new clients in the existing market; IECP – Increase the efficiency of the company's processes. Measured on a 4-point Likert scale (4 – very high benefit, 1 – very low benefit). Inequal group sizes appeared due to the option "I can't tell".

Table 8
Kruskal-Wallis test and multiple comparisons of differences between benefits brought by innovation to the establishments (*p-values, 2-tailed*)

Kruskal-Wallis test: H (6, n = 214) = 44.29; p = <0.01**							
	IQS	IS	RC	ILP	GNM	ANCEM	IECP
IQS	-						
IS	1.00	-					
RC	<0.01**	0.01*	-				
ILP	<0.01**	0.14	1.00	-			
GNM	0.06	1.00	1.00	1.00	-		
ANCEM	0.52	1.00	0.15	1.00	1.00	-	
IECP	<0.01**	0.32	1.0	1.00	1.00	1.00	-

Note: IQS – Increasing the quality of service; IS – Increase in sales; RC – Reduction of costs; ILP – Increase labor productivity; GNM – Gaining a new market; ANCEM – Acquiring new clients in the existing market; IECP – Increase the efficiency of the company's processes. *shows statistically significant result at α = 5%; ** shows statistically significant results at α = 1%.

The above-mentioned results can be interpreted in such a way that while the introduction of innovations in spa facilities meant an increase rather than a reduction in costs, on the other hand, there were benefits associated with a higher quality of service and higher incomes. At the same time, however, it is necessary to point out the fact that these benefits were not linked to the fact that the productivity of work or the established processes of the company would be increased/changed. It can thus be assumed that innovations (despite their cost) work in a smart way that does not require higher productivity and yet leads to definite financial and qualitative benefits.

When evaluating the financial benefits (see Figure 4 and Table 9), "revenue" and "enterprise value" were seen as the most positive. The first of these criteria also showed the greatest agreement in its high benefit (with the lowest standard deviation). On the contrary, "reduction of indebtedness" was rated the least positively. This particular criterion was evaluated statistically significantly worse than the two best-evaluated criteria ($p < 0.01$; $p = 0.03$). Overall, even this set of questions shows statistically significant differences ($H = 32.76$; $p < 0.01$). The results of the evaluation of the financial indicators correspond well with the previous part of the results. A positive effect on revenue can be associated with a positive effect on increased sales. On the contrary, the creation of costs can be associated with the impossibility of eliminating debts when introducing innovations.

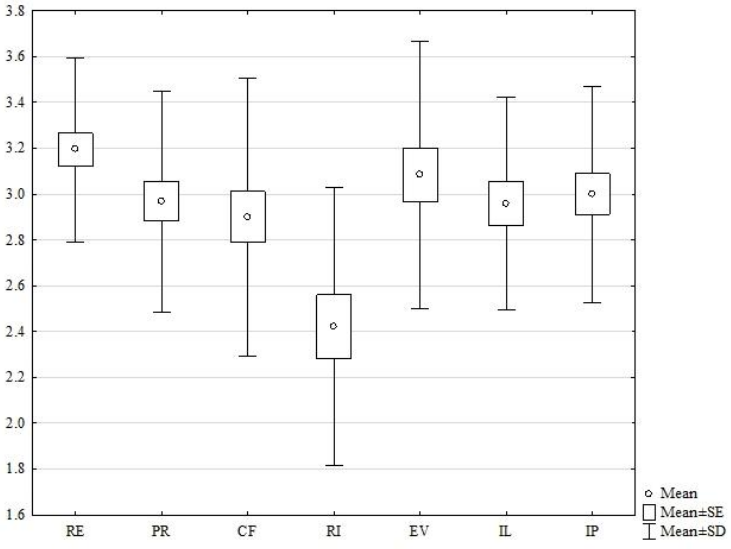

Figure 4
Degree of economic benefits or advantages brought by innovations to the establishment
Note: RE – Revenue; PR – Profit; CF – Cash flow; RI – Reduction of indebtedness; EV – Enterprise value; IL – Increase in liquidity; IP – Increase in profitability. Measured on a 4-point Likert scale (4 – very positive, 1 – very negative). Inequal group sizes appeared due to the option "I can't tell".

Table 9
Kruskal-Wallis test and multiple comparisons of differences between economic benefits or advantages brought by innovation to the establishments (*p-values, 2-tailed*)

Kruskal-Wallis test: H (6, n = 187) = 32.76; p = <0.01**							
	RE	PR	CF	RI	EV	IL	IP
RE	-						
PR	1.00	-					
CF	1.00	1.00	-				
RI	<0.01**	0.13	0.36	-			
EV	1.00	1.00	1.00	0.03*	-		
IL	1.00	1.00	1.00	0.20	1.00	-	
IP	1.00	1.00	1.00	0.09	1.00	1.00	-

Note: RE – Revenue; PR – Profit; CF – Cash flow; RI – Reduction of indebtedness; EV – Enterprise value; IL – Increase in liquidity; IP – Increase in profitability. *shows statistically significant result at α = 5%; ** shows statistically significant results at α = 1%.

Discussion

Our study showed that the year 2020, which can be associated with the greatest impact of the crisis not only on the spa but the entire hospitality sector, was a turning point in the development of innovations. It turned out that in this year and after, there was a dynamic development in some kinds of innovation, and it seems that several spa establishments carried out a process of "rethink the future" (Sovani, 2022). The importance of innovation in the hospitality sector during the crisis of COVID-19 has already been demonstrated in other studies (Breier, Kallmuenzer, Clauss, Gast, Kraus, and Tiberius, 2021). While these studies examined, for example, business innovations, our study examined innovations divided into four types – product, technical and technological, organizational, and marketing innovations.

Regarding the particular results of our study, the rapid growth of marketing innovations, especially after 2020, and the revival of product innovations (although not to such an extent) can also be explained by the complementary nature of both types of innovations, i.e., when the introduction of new products comes to the market hand in hand with marketing activities, as written by Ebersberger, Herstad, and Nordli (2021). Although the reasons for the growth of technological innovation during periods of crisis may be obvious, some studies in the field of hospitality have shown that they are also important because of the increase in sales turnover (Martin-Rios and Ciobanu, 2019). Although our study shows that organizational innovations are considered the least important by spa

operators, foreign experience shows that they should not resent such innovations. A study in the hospitality field by Gupta and Sahu (2021) conducted in India showed that training programs as a method of innovation significantly increased guest satisfaction.

Our study also offers a limited prediction of the development of innovations, so it follows other thematically similar studies previously published (Valença, Sobral, Andrade Lima, and Farias, 2020). As for the cross-country comparison of innovations in spa establishments, i.e., the comparison between the Czech Republic and the Slovak Republic, our study extends the smaller number of other already published studies on this topic (Senkova, Kolesarova, and Kosikova, 2024). In the business environment in the Czech Republic, it has also been proven that the application of innovations is strongly dependent on international linkages, e.g., foreign technological innovations or certificates (Odei and Appiah, 2023).

Our study showed that spa establishments mainly use national and European subsidies. There are still about a tenth of spa facilities that do not use subsidies at all. In the past, it has been proven that subsidies are essential in the entire hospitality sector and have a positive effect on the performance of these establishments (Tundis, Gabriele, and Zaninotto, 2017). The use of possible subsidies is all the more important when we discovered that the biggest perceived barriers on the part of the spa establishments we approached were financial and economic barriers.

As far as the perception of the benefits of innovations is concerned, our finding that innovations for increasing service quality are the most beneficial is also essential because previously conducted studies found a positive effect of innovations in service quality on customer loyalty in the hospitality sector (Satti, Babar, Parveen, Abrar, and Shabbir, 2020). On the contrary, the fact that our respondents did not perceive a positive effect of innovation on labor productivity is striking. Bhat and Sharma (2021) proved that service innovations significantly increase the productivity of employees in the hospitality industry.

The findings are important in several ways. They build on the work of some Czech authors (Marková, 2022; Attl and Pátek, 2021) and Slovak authors (Štefko, Jenčová and Vašanicová, 2020) who are working on this issue. They also build on the activities of research institutions, such as the Institute of Spa and Balneology or The Research Institute of Spa Industry. Another example of innovative activities is the Innovation Platform for Spa and Balneology. However, it can be stated that in terms of the scope and depth of research, this study is the most representative and extensive research on innovation in the spa sector, which has no parallel in the Czech or Slovak environment in recent years.

At the same time, it should be emphasized that most European studies focused on innovations in spa tourism are based on a broader concept of the spa

industry compared to what is defined and regulated by legislation in the Czech Republic and the Slovak Republic (Plzáková and Crespo Stupková, 2019). In these two countries, the authors assume that health spa is based on natural healing resources and it is built on science as a necessary part of qualified medical care (Šenková, 2021). This definition thus usually creates narrower conditions for the application of innovation as well as for the international comparisons.

Concluding Remarks

Our study examined the issue of innovations in the spa sector in the Czech Republic and the Slovak Republic, specifically their development over time, their cross-country comparison, their specific structure, and, finally, the perceived benefits of these innovations by spa establishments. Our investigation showed that the spa sector has a high potential for research activity. The study pointed to several findings that would be appropriate for a more detailed future investigation, for example, using a qualitative methodology. Furthermore, it can be recommended to continue monitoring the selected innovation indicators in the following years. This would allow the analysis to extend beyond the post-pandemic phase. The limits of the study, which also limit the statistical evaluation, are mainly determined by the number of respondents. However, from our perspective, it is not possible to increase it significantly as the number of spa facilities in the Czech Republic and the Slovak Republic is limited.

Specific recommendations involving business improvement result from partial findings of the research. It is clear that in the Czech Republic and Slovakia, a higher application of organizational innovations can be recommended, as is the case abroad, where these approaches, as mentioned above, lead to higher guest satisfaction. Innovations are, based on the presented findings, a fundamental way to improve the quality of services provided. The application of innovations should therefore be an elementary means for the purpose of continuous quality improvement. Another recommendation concerns not only spa businesses, but also the state administration as a provider of subsidies - there is still a significant part of spa facilities that do not use subsidies, despite the fact that the most important obstacle to the introduction of innovations for the operators themselves is the lack of financial resources.

Another recommendation concerns monitoring associated with the implementation of innovations - spa facilities should quantify labor productivity before and after the application of innovations. The proclaimed unchanged labor productivity by the spa operators we surveyed raises questions and should be a trigger for readjusting internal monitoring. We can also say that innovation in the form of acquiring new markets, which was considered the second most im-

portant innovation by the spa facilities we surveyed, and is a fundamental innovation practice around the globe, is not perceived positively by some of the operators in the Czech Republic and Slovakia. A follow-up survey should find out why this is the case. With regard to COVID-19, state support has proven useful, and the pandemic threat was transformed by some operators into an opportunity when they introduced post-covid treatment of diseases as a product innovation. However, we believe that this approach is specific to the spa area and might not be applicable in other fields.

Lastly, innovation activities in the spa sector are currently perceived by the European Spa Association as a priority task. The highlight of ESPA's activities in this area is the annual ESPA Innovation Award competition, which spa establishments from the Czech Republic will also participate in. It can be assumed that especially with advancing scientific knowledge, automation, robotization, the application of artificial intelligence, and other knowledge, the innovation process in the spa industry will continue to accelerate. The reason is the pressure to maintain and increase the competitiveness of the spa industry within the health system of individual countries and also within the framework of other forms of tourism.

STATEMENT OF ETHICS

The authors report that all study participants agreed in advance to participate in the questionnaire survey, which was completely anonymous. The Ethics Committee of University College Prague approved the research under the number 03092023A.

DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interests with respect to the research, authorship, and/or publication of the article *The Importance of Innovation in the Czech and Slovak Spa Industry: The COVID-19 Era and Beyond.*

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AUTHORS' CONTRIBUTIONS

Josef Pátek: Conceptualization, Methodology, Data Curation, Validation, Original Draft.
Jiří Zelený: Data Curation, Analysis, Investigation, Visualization, Validation, Review & Editing.
Lucie Plzáková: Conceptualization.
Petr Studnička: Conceptualization, Methodology, Data Curation, Validation, Original Draft.
All authors approved the final version of the manuscript.

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ZAGOSPODAROWANIE TURYSTYCZNE I REKREACYJNE W POWIECIE CZĘSTOCHOWSKIM (ZIEMSKIM) – ZARYS PROBLEMATYKI

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Tourism and Recreational Development in Częstochowa County (rural) – An Outline of Key Issues

Abstract

Częstochowa County has considerable tourism potential, stemming not only from the landscape values of the Kraków-Częstochowa Upland (the Polish Jura), but also from its well-developed tourism infrastructure. Of particular importance is tourism development, comprising accommodation, catering, transport, and complementary facilities. The region offers numerous hiking and cycling routes, bathing areas, horse-riding centres, a golf course, a speedway track, and sports halls. The municipalities of Janów and Olsztyn stand out for their extensive accommodation and catering base, whereas smaller municipalities, such as Starcza or Kruszyna, have limited infrastructure. A well-developed road and rail network ensures the region's accessibility, while proximity to the airport in Pyrzowice further enhances its attractiveness. Gastronomy based on local products and culinary traditions, supported by Rural Housewives' Associations, enriches the tourism offer. Despite its many advantages, tourism development is constrained by uneven investment patterns, seasonality, and the absence of an integrated tourist information system. Nevertheless, the county retains substantial potential for further growth due to the diversity of attractions and the involvement of local communities.

Keywords: tourism development, recreational development, Częstochowa County.

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Streszczenie

Powiat częstochowski ma duży potencjał turystyczny, który wynika nie tylko z walorów krajobrazowych Jury Krakowsko-Częstochowskiej, ale także z dobrze rozwiniętej infrastruktury turystycznej. Kluczowe znaczenie ma zagospodarowanie turystyczne, obejmujące bazę noclegową, gastronomiczną, komunikacyjną oraz uzupełniającą. Region oferuje liczne szlaki piesze i rowerowe, kąpieliska, stadniny koni, pole golfowe, tor żużlowy i hale sportowe. Gminy Janów i Olsztyn wyróżniają się rozbudowaną bazą noclegową i gastronomiczną, natomiast mniejsze gminy, takie jak Starcza czy Kruszyna, mają ograniczoną infrastrukturę. Dobrze rozwinięta sieć drogowa i kolejowa zapewnia dostępność regionu, a bliskość lotniska w Pyrzowicach zwiększa jego atrakcyjność. Gastronomia oparta na lokalnych produktach i tradycjach kulinarnych, wspierana przez Koła Gospodyń Wiejskich, wzbogaca ofertę turystyczną. Mimo licznych atutów rozwój turystyki ograniczają nierównomierne inwestycje, sezonowość oraz brak zintegrowanego systemu informacji turystycznej. Powiat ma jednak duży potencjał do dalszego rozwoju dzięki różnorodności atrakcji i zaangażowaniu lokalnych społeczności.

Słowa kluczowe: zagospodarowanie turystyczne, zagospodarowanie rekreacyjne, powiat częstochowski.

Wprowadzenie

Celem artykułu jest analiza stanu zagospodarowania turystycznego i rekreacyjnego w powiecie częstochowskim ziemskim (stan na koniec pierwszej połowy 2025 roku) – istniejącej infrastruktury, walorów kulturowych oraz możliwości rozwoju. W niniejszym artykule podjęto próbę wskazania potencjalnych kierunków rozwoju i rekomendacji dla lokalnych władz oraz społeczności, aby zwiększyć atrakcyjność turystyczną powiatu, promować lokalną kulturę i tradycje oraz generować korzyści ekonomiczne dla mieszkańców.

Powiat częstochowski (ziemski) w obecnym kształcie został utworzony 1 stycznia 1999 roku w wyniku reformy administracyjnej. Położony jest w północnej części województwa śląskiego. Od północy graniczy z województwem łódzkim, od wschodu z województwem świętokrzyskim, natomiast od południa i zachodu sąsiaduje z czterema innymi powiatami województwa śląskiego: zawierciańskim, myszkowskim, lublinieckim oraz kłobuckim.

Powiat częstochowski ziemski otacza miasto Częstochowę, które od ostatniej reformy administracyjnej funkcjonuje jako miasto na prawach powiatu (czyli powiat grodzki). Taka specyficzna lokalizacja powoduje pewne trudności organizacyjne – część usług publicznych, które powinny być dostępne dla mieszkańców powiatu ziemskiego, realizowana jest przez instytucje zlokalizowane w Częstochowie – formalnie w odrębnym powiecie. To może prowadzić do niejasności kompetencyjnych i utrudnień w dostępie do niektórych usług.

Powiat częstochowski położony jest głównie na obszarze Wyżyny Krakowsko-Częstochowskiej, która stanowi zachodnią część Wyżyny Małopolskiej. Wschodnie i północne tereny powiatu należą natomiast do Niecki Włoszczow-

skiej. Charakterystycznym elementem krajobrazu są liczne skałki i ostańce, z których część wznosi się nawet powyżej 350 metrów n.p.m., podczas gdy większość obszaru Wyżyny Częstochowskiej przekracza wysokość 200 metrów n.p.m.. Zróżnicowana rzeźba terenu nadaje regionowi wyjątkowy charakter i sprzyja rozwojowi turystyki aktywnej.

W skład powiatu częstochowskiego wchodzi 16 gmin, w tym 4 gminy miejsko-wiejskie Blachownia, Koniecpol, Olsztyn (od 1 stycznia 2022 r.), Przyrów (od 1 stycznia 2024 r.) – oraz 12 gmin wiejskich: Dąbrowa Zielona, Janów, Kamienica Polska, Kłomnice, Konopiska, Kruszyna, Lelów, Mstów, Mykanów, Poczesna, Rędziny, Starcza. Powiat częstochowski należy największych pod względem obszaru, w województwie śląskim i jednym z największych w kraju – jego powierzchnia wynosi 1522 km², co stanowi 12,4% całkowitej powierzchni województwa. W powiecie częstochowskim jest 278 miejscowości – najwięcej w gminie Mykanów – 40, w gminie Kłomnice – 32, w gminie Koniecpol – 28. Najmniej miejscowości mają gminy Rędziny – 7 i Blachownia – 8 (Raport o stanie powiatu częstochowskiego za 2024 rok).

Liczba ludności powiatu częstochowskiego wynosiła – według stanu na koniec 2024 r. – 131 042 osoby (kobiety 66 774 – ok. 51%, mężczyźni: 64 268 – ok. 49%). W miastach mieszkają 17 793 osoby (ok. 13,6% ogółu), w tym: kobiety: 9355, mężczyźni: 8438. Na wsi mieszka 113 249 osób (ok. 86,4% ogółu), w tym: kobiety 57 419, mężczyźni 55 830 (https://bdl.stat.gov.pl/bdl/dane/teryt/tablica). Powiat częstochowski to region o wyjątkowych walorach przyrodniczych, bogatej historii i różnorodnych atrakcjach turystycznych. Zarówno miłośnicy natury, aktywnego wypoczynku, jak i pasjonaci historii znajdą tu coś dla siebie. To idealne miejsce na rodzinne wycieczki, relaks i odkrywanie uroków północnej części województwa śląskiego.

Stan badań nad zagospodarowaniem turystycznym i rekreacyjnym w powiecie częstochowskim ma charakter rozproszony, ale obejmuje kilka istotnych obszarów analizy: potencjał turystyczny, rozwój infrastruktury, waloryzację przestrzeni oraz uwarunkowania lokalne. W ramach ogólnopolskiego projektu waloryzacji turystyczno-kulturowej prowadzonego przez czasopismo „Turystyka Kulturowa" powiat częstochowski, jako region rolniczo-turystyczny, został uwzględniony w analizach przestrzennych i porównawczych (Czajkowski, 2014; Ziarkowski, 2014).

W ramach badań akademickich powstały prace dyplomowe i inżynierskie dotyczące konkretnych obszarów, np. rezerwatu „Parkowe" w gminie Janów (Partyka 2015). Analizowano tam stan zagospodarowania turystycznego, potencjał geologiczny, infrastrukturę oraz możliwości rozwoju ścieżek edukacyjnych i rekreacyjnych. W artykule pt. *Uwarunkowania rozwoju lokalnego na przykładzie powiatu częstochowskiego* (Kabus & Nowakowska-Grunt, 2016) omówiono strategię rozwoju regionu, uwzględniającą jego rolniczo-turystyczny charakter. Pod-

kreślono znaczenie planowania przestrzennego, inwestycji infrastrukturalnych oraz współpracy samorządowej w kontekście rozwoju turystyki. Starostwo Powiatowe w Częstochowie publikuje raporty o stanie powiatu, które zawierają dane dotyczące infrastruktury turystycznej, sportowej, kulturowej oraz komunikacyjnej. Dokumenty te stanowią ważne źródło informacji o aktualnych działaniach i inwestycjach w zakresie zagospodarowania turystycznego i rekreacyjnego.

Stan badań nad zagospodarowaniem turystycznym i rekreacyjnym w powiecie częstochowskim jednoznacznie wskazuje na potrzebę podjęcia działań zmierzających do opracowania kompleksowej publikacji poświęconej temu zagadnieniu. Mimo dostępnych raportów, analiz statystycznych oraz pojedynczych prac naukowych i lokalnych opracowań, brakuje spójnego, interdyscyplinarnego ujęcia, które w sposób systematyczny przedstawiłoby aktualny stan zagospodarowania turystycznego i rekreacyjnego powiatu częstochowskiego, jego potencjał rozwojowy, bariery oraz rekomendacje dla dalszych działań.

Niniejsza publikacja uwzględnia zarówno aspekty przestrzenne i infrastrukturalne, jak i społeczne, kulturowe oraz ekonomiczne, a także opiera się na aktualnych danych terenowych, analizach porównawczych i konsultacjach z lokalnymi interesariuszami. Jej przygotowanie byłoby istotnym krokiem w kierunku profesjonalizacji działań promujących turystykę w powiecie częstochowskim oraz wzmocnienia jego pozycji na mapie turystycznej regionu i kraju.

Metody i problemy badawcze

W przygotowaniu artykułu zostały wykorzystane następujące metody badawcze: analizy, syntezy, indukcji i dedukcji. Przeprowadzono analizę literatury przedmiotu – dokonano przeglądu publikacji naukowych, dokumentów strategicznych, planów zagospodarowania przestrzennego dotyczących turystyki i rekreacji w omawianym regionie. Dokonano analizy danych statystycznych. Wykorzystano materiały źródłowe Głównego Urzędu Statystycznego, Centralnej Ewidencji i Informacji o Działalności Gospodarczej, lokalnych urzędów gmin i powiatu do oceny liczby turystów, struktury demograficznej, dostępności usług.

Wysunięto następujące problemy badawcze:

1. Jak przedstawia się zagospodarowanie turystyczne i rekreacyjne w powiecie częstochowskim (ziemskim)?
2. W jakim stopniu istniejąca infrastruktura odpowiada na potrzeby turystów i mieszkańców?
3. Jakie są bariery rozwoju turystyki i rekreacji w regionie?

Wyniki i dyskusja

Choć walory turystyczne i krajobrazowe są istotne, nie stanowią jedynego czynnika wpływającego na wykorzystanie danego obszaru w celach turystycznych. W dobie masowej turystyki coraz większe znaczenie zyskuje odpowiednie zagospodarowanie turystyczne, które nie tylko wspiera rozwój ruchu turystycznego, ale także zwiększa konkurencyjność regionu. Dobrze zaplanowana infrastruktura sprzyja komfortowemu wypoczynkowi zarówno turystów, jak i lokalnych mieszkańców, a nawet tereny o ograniczonych walorach mogą przyciągać odwiedzających, jeśli zostaną właściwie zagospodarowane.

Zagospodarowanie turystyczne i rekreacyjne stanowi jeden z kluczowych czynników przyciągających turystów oraz zapewniających im komfortowe warunki wypoczynku na danym obszarze. Jego głównym celem jest dostosowanie przestrzeni do potrzeb ruchu turystycznego i stworzenie odpowiedniej infrastruktury sprzyjającej rekreacji (Warszyńska & Jackowski, 1978; Pawlikowska-Piechotka, 2009).

Zagospodarowanie turystyczne to zintegrowany system urządzeń i usług funkcjonujących na określonym obszarze, których celem jest udostępnienie walorów przestrzeni geograficznej turystom oraz zaspokojenie ich potrzeb związanych z wypoczynkiem i rekreacją. Szczególną rolę w zagospodarowaniu turystycznym odgrywa tzw. materialna baza turystyczna. W jej skład wchodzą: baza noclegowa turystyki, baza gastronomiczna turystyki, baza transportowa turystyki, turystyczna baza uzupełniająca (baza towarzysząca turystyce). Ich odpowiednie rozmieszczenie i dostępność mają kluczowe znaczenie dla komfortu turystów oraz atrakcyjności danego regionu (Kowalczyk & Derek, 2010; Molenda, 2011; Pawlikowska-Piechotka, 2009; Pawlikowska-Piechotka, 2016).

Turystyczna baza transportowa

Istotnym elementem zagospodarowania turystycznego są drogi krajowe i wojewódzkie, które pełnią kluczową rolę w dostępności regionu dla turystów. Ułatwiają one szybki i wygodny dojazd do atrakcji turystycznych, wpływają na rozwój lokalnej infrastruktury oraz zwiększają konkurencyjność obszaru na tle innych regionów. Dobrze rozwinięta sieć drogowa sprzyja zarówno turystyce indywidualnej, jak i zorganizowanej, a także wspiera lokalną gospodarkę poprzez poprawę mobilności mieszkańców i przedsiębiorców. Powiat częstochowski charakteryzuje się dobrze rozwiniętą siecią połączeń drogowych i kolejowych, co zapewnia dogodne możliwości komunikacyjne zarówno w skali lokalnej, jak i krajowej. Sieć komunikacyjną powiatu tworzą: autostrada A1 (Gdańsk – Cieszyn), drogi krajowe (nr 46 Kłodzko – Opole – Lubliniec – Częstochowa – Szczekociny,

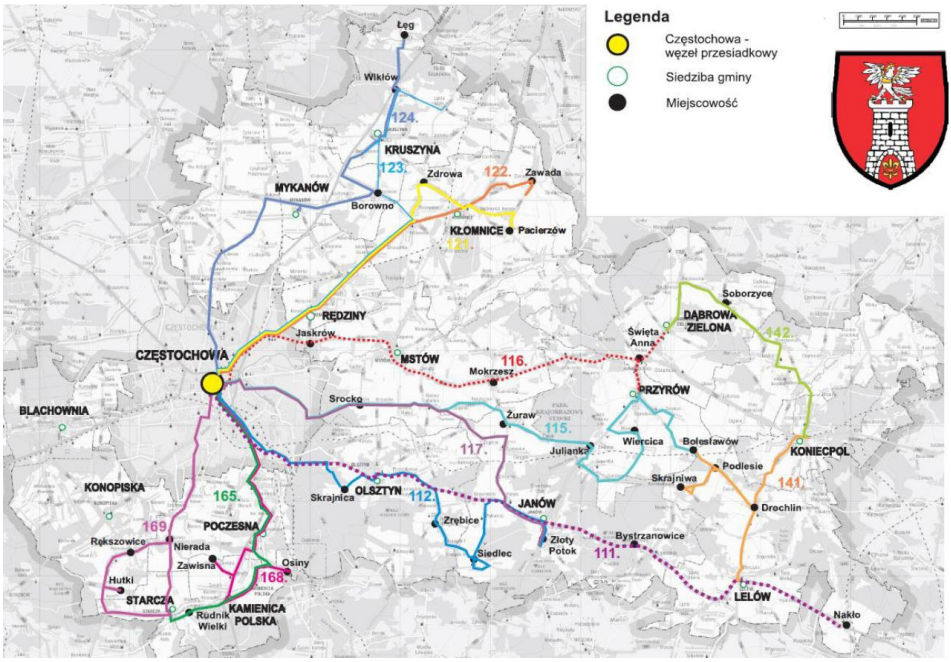
nr 91 Siewierz – Częstochowa – Piotrków Trybunalski), drogi wojewódzkie (nr 483, 786, 793, 784, 794) o długości 156,2 km (https://czestochowa.powiat.pl/kryzys/pdf/charakterystyka.pdf) oraz drogi powiatowe o długości 574,831 km. Zapewniają one sprawne połączenia z sąsiednimi regionami (https://czestochowa.powiat.pl/pzd/index.php?page=roads). Na terenie powiatu znajduje się 578 km dróg powiatowych i 1264 km dróg gminnych (*Raport o stanie powiatu częstochowskiego za 2024 rok*).

Przewozy autobusowe (zob. ryc. 1) – na obszarze powiatu częstochowskiego realizowane są na następujących liniach komunikacyjnych: Częstochowa – Olsztyn – Janów – Lelów – Nakło; Częstochowa – Skrajnica – Olsztyn – Zrębice – Pabianice – Złoty Potok; Częstochowa – Srocko – Lipnik – Przyrów – Zarębice – Bolesławów; Częstochowa – Srocko – Zagórze – Piasek – Janów – Złoty Potok; Koniecpol – Drochlin – Bolesławów – Drochlin – Lelów; Częstochowa – Mstów – Mokrzesz – Święta Anna – Dąbrowa Zielona; Koniecpol – Łysiny – Łabędź – Soborzyce – Dąbrowa Zielona; Częstochowa – Rudniki – Nieznanice – Kłomnice – Pacierzów – Garnek; Częstochowa – Rudniki – Kłomnice – Lipicze – Zawada; Częstochowa – Rudniki – Kłomnice – Zawada – Lipicze; Częstochowa – Rudniki – Borowno – Kruszyna – Lgota Mała; Częstochowa – Lubojna – Mykanów – Borowno – Łęg; Częstochowa – Poczesna – Wanaty – Zawisna – Kamienica Polska – Osiny; Starcza – Nierada – Częstochowa – Poczesna – Kamienica Polska – Starcza; Częstochowa – Łysiec – Starcza – Hutki – Rększowice – Częstochowa (*Raport o stanie powiatu częstochowskiego za 2024 rok*).

Przewozy autobusowe o charakterze użyteczności publicznej realizowane na terenie powiatu częstochowskiego do 31 grudnia 2024 roku odbywały się w ramach wyznaczonych linii komunikacyjnych. W drodze przetargu do obsługi wyznaczonych linii zostało wyłonionych 5 przewoźników. Dodatkowo w powiecie częstochowskim komunikację zapewniają również lokalni przewoźnicy. Z dniem 31 grudnia 2024 roku powiat częstochowski zakończył organizację publicznego transportu zbiorowego, przekazując te kompetencje Jurajskiemu Związkowi Powiatowo-Gminnemu funkcjonującemu pod nazwą „Komunikacja Jurajska".

Linie powiatowe obsługiwane przez „Komunikację Jurajską" oraz przewoźników lokalnych kursują głównie w dni robocze, z rozkładami dostosowanymi do godzin dojazdów do pracy i szkół. Na trasach o większym natężeniu (np. Częstochowa – Olsztyn, Częstochowa – Złoty Potok, Częstochowa – Koniecpol) kursy odbywają się kilka razy dziennie, zwykle od wczesnego rana do wieczora. W dni wolne liczba kursów jest ograniczona – często do 3–5 połączeń w ciągu dnia. Władze powiatu podkreślają, że rozkłady są projektowane w oparciu o potrzeby lokalnych społeczności, z uwzględnieniem szczytów porannych i popołudniowych oraz godzin lekcyjnych. Na obszarze powiatu częstochowskiego trwają inwestycje w centra przesiadkowe, parkingi „park&ride" i „bike&ride" oraz system informacji pasażerskiej (tablice elektroniczne, komunikaty głosowe), co ma po-

prawić dostępność transportu zbiorowego i jego atrakcyjność (https://wczestochowie.pl/w-powiecie-czestochowskim-stawiaja-na-zintegrowana-komunikacje-i-czystsze-powietrze/).



Rycina 1
Linie komunikacji publicznej realizowane na terenie powiatu częstochowskiego w 2024 r.
Źródło: *Raport o stanie powiatu częstochowskiego za 2024 r.* Starostwo Powiatu Częstochowskiego 2025.

Do miejscowości turystycznych Jury Krakowsko-Częstochowskiej (Olsztyn, Złoty Potok, Janów, Lelów) w weekendy liczba kursów jest mniejsza, ale nadal umożliwia to dojazd do atrakcji turystycznych. Dla turystów planujących aktywny wypoczynek transport publiczny jest pomocny, ale wymaga wcześniejszego sprawdzenia rozkładów.

Sieć kolejowa na terenie powiatu częstochowskiego pełni obecnie funkcję uzupełniającą, jednak w przyszłości może zyskać na znaczeniu zarówno dla przewozów lokalnych, ruchu towarowego, jak i rozwoju turystyki. Przez powiat częstochowski przebiega ważna linia kolejowa nr 001 na trasie Katowice – Zawiercie – Częstochowa – Koluszki – Skierniewice – Warszawa, obsługująca stacje i przystanki: Korwinów, Rudniki, Rzerzęczyce, Kłomnice, Jacków oraz Widzów/Teklinów. Drugą istotną linią jest linia nr 146 Częstochowa – Zduńska Wola, będąca częścią dłuższej trasy prowadzącej przez Inowrocław, Bydgoszcz, Laskowice Pomorskie, Tczew i Gdańsk do Gdyni; na terenie powiatu obsługuje ona stacje

i przystanki w Mykanowie, Cykarzewie Starym i Cykarzewie. Do regionalnych połączeń kolejowych na terenie powiatu częstochowskiego należą m.in. linia kolejowa nr 061, przebiegająca na trasie Opole – Blachownia – Częstochowa – Koniecpol – Włoszczowa – Kielce. Obsługuje ona stacje i przystanki osobowe takie jak: Kusięta Nowe, Turów, Lusławice, Julianka, Staropole Częstochowskie, Podlesie, Koniecpol Magdasz oraz Koniecpol. Drugą ważną komunikacyjną trasą kolejową jest linia nr 064, łącząca Koniecpol z Kozłowem, Tunelem i Krakowem. Dodatkowo przez południowo-wschodni obszar gminy Lelów przebiega linia kolejowa nr 004 Centralnej Magistrali Kolejowej, która może mieć znaczenie dla przyszłego rozwoju transportu pasażerskiego i towarowego w regionie (https://mapa.plk-sa.pl).

Na terenie powiatu częstochowskiego, w gminie Rędziny, znajduje się zapasowe lotnisko wojskowe, które w przyszłości może zostać przystosowane do obsługi lotniczego transportu towarowego, pasażerskiego oraz czarterowego (https://aeroklub-czestochowa.org.pl/lotnisko-rudniki).

Dużym atutem powiatu częstochowskiego jest bliskość międzynarodowego portu lotniczego w Pyrzowicach. W 2024 roku linie lotnicze oraz biura podróży obsłużyły w ramach siatki połączeń regularnych oraz czarterowych 6 386 145 pasażerów (https://katowice-airport.com/pl/nasze-lotnisko/aktualnosci/228).

W powiecie częstochowskim znajduje się wiele tras rowerowych, a także liczne trasy MTB i szlaki szosowe w okolicy miasta Częstochowa i na Jurze Krakowsko-Częstochowskiej. Popularne są również szlaki łączące się z innymi trasami w regionie, takie jak Szlak Wokół Gór Sokolich i Olsztyna czy Żółty szlak rowerowy nr 600. Do najbardziej znanych szlaków rowerowych w powiecie częstochowskim należą:

— Szlak Orlich Gniazd: długi szlak (ok. 190 km) łączący liczne zabytki Jury Krakowsko-Częstochowskiej;
— Szlak Zygmunta Krasińskiego: zielony szlak (ok. 72 km) z Częstochowy do Myszkowa, wiodący przez Mstów i Złoty Potok;
— Szlak Przełomu Warty: żółty szlak (32 km) łączy Częstochowę z Mstowem i jest częścią większego systemu tras na Jurze;
— Szlak wokół Gór Sokolich i Olsztyna: zielony szlak (28 km) połączony z innymi szlakami, np. z zielonym szlakiem rowerowym z Częstochowy do Olsztyna;
— Zielony szlak rowerowy: Częstochowa – Olsztyn (8 km). Prowadzi przez malownicze tereny Jury;
— Szlak rowerowy Dębowcówka**:** niebieska trasa z Częstochowy do Poraja (16 km);
— Czarny szlak rowerowy wzdłuż Warty: Czarny kolor (5,7 km) Wancerzów – Częstochowa (https://roweremposlasku.pl/tag/powiat-czestochowski).

Położenie powiatu częstochowskiego zachęca do aktywnych form turystyki. Przy wsparciu finansowym miasta Częstochowa został zrealizowany projekt

„Częstochowa. Brama na Jurę”[1] (www.bramajury.pl). Na terenie miasta i okolic znajdują się liczne trasy MTB dla rowerów górskich i crossowych, zróżnicowane pod względem trudności. Na obszarze powiatu częstochowskiego istnieją również wyznaczone trasy na rower szosowy, których z każdym rokiem przybywa (zob. tab. 1).

Tabela 1
Długość dróg rowerowych w kilometrach w Częstochowie (*miasto na prawach powiatu*) *oraz powiecie częstochowskim* (*ziemskim*) *w latach 2011–2024*

Rok	2011	2013	2015	2017	2019	2020	2021	2022	2023	2024
Długość dróg dla rowerów ogółem*	15,1	23,2	34,2	34,6	42,6	45,1	46,3	56,4	65,8	70
Długość dróg dla rowerów będących pod zarządem gminy	0	13,6	12	11,9	19,2	21,7	21,7	23,7	25,9	25,9
Długość dróg dla rowerów będących pod zarządem starostwa	0	3,5	16,1	16,6	17,5	17,5	18,7	18,7	25,9	27,8
Długość dróg dla rowerów będących pod zarządem urzędu marszałkowskiego	0	6,1	6,1	6,1	5,9	5,9	5,9	14	14	16,4

* Długość dróg dla rowerów (Wymiary: Drogi dla rowerów i buspasy) – Droga dla rowerów – droga lub część drogi niebędącej jezdnią oznaczona odpowiednimi znakami drogowymi (np.C-13, C-13/16) przeznaczona do ruchu rowerów, hulajnóg elektrycznych i urządzeń transportu osobistego oraz osób poruszających się przy użyciu urządzenia wspomagającego ruch i ruchu pieszych, w przypadkach przewidzianych w ustawie (ustawa z dnia 20 czerwca 1997 r. – Prawo o ruchu drogowym (Dz. U. z 2022 r. poz. 988, z późn. zm.). Począwszy od roku 2013 dane uwzględniają długość dróg dla rowerów będących odpowiednio w obszarze właściwości gminy, starostwa i urzędu marszałkowskiego (bez długości szlaków rowerowych), czyli: samodzielnych dróg dla rowerów (położonych w pasie drogi); dróg wydzielonych z jezdni; dróg wydzielonych z chodnika; dróg zawartych w ciągach pieszo-rowerowych. Za długość dróg dla rowerów należy uważać długość dróg przebiegających w jednym kierunku. Długość dróg położonych po dwóch stronach drogi jest liczona odrębnie. Ujęto drogi służące głównie do celów komunikacyjnych, a nie turystycznych, tzw. szlaków rowerowych (np. położonych w lesie).

Źródło: Opracowanie własne na podstawie danych Głównego Urzędu Statystycznego.

Turystyczna baza gastronomiczna

Gastronomia pełni ważną rolę w kreowaniu wizerunku regionu i wpływa na doświadczenia turystyczne. Gastronomia powiatu częstochowskiego oferuje szeroki zakres dań, od kuchni polskiej, gruzińskiej i śródziemnomorskiej, po spe-

[1] „Częstochowa. Brama na Jurę” to mobilna aplikacja mapowa dostępna na systemy Android i iOS, stworzona z myślą o miłośnikach jazdy na rowerze. Umożliwia korzystanie z gotowych tras rowerowych oraz tworzenie własnych, z uwzględnieniem poziomu trudności i trybu jazdy: turystycznego, miejskiego lub szosowego. Aplikacja oferuje profil wysokościowy trasy, możliwość zapisania i udostępnienia jej innym użytkownikom, a także pobranie śladu GPX. Na mapie znajdują się propozycje wycieczek rowerowych po okolicach Częstochowy wpisanych w krajobraz Jury Krakowsko-Częstochowskiej, wzbogacone o punkty orientacyjne ze zdjęciami, które ułatwiają nawigację i planowanie przejazdu.

cjały regionu jurajskiego. Powiat częstochowski ma charakter rolniczy i turystyczny, co sprzyja powstawaniu miejsc oferujących lokalne produkty, tradycyjne dania oraz usługi gastronomiczne w ramach agroturystyki. Działalność gospodarcza powiatu, bazująca głównie na rolnictwie i usługach, co wpływa na powstawanie tradycyjnych, lokalnych restauracji serwujących dania regionalne, a także na rozwój sieci barów i punktów gastronomicznych przy głównych trasach komunikacyjnych. Lokale często współpracują z branżą turystyczną, oferując specjalne menu, catering na wydarzenia oraz posiłki dla grup zorganizowanych. Rozmieszczenie punktów gastronomicznych na obszarze powiatu częstochowskiego jest zróżnicowane (zob. ryc. 2).

Gminy powiatu częstochowskiego

I. Blachownia
II. Konopiska
III. Starcza
IV. Kamienica Polska
V. Poczesna
VI. Olsztyn
VII. Janów
VIII. Lelów
IX. Koniecpol
X. Przyrów
XI. Mstów
XII. Rędziny
XIII. Mykanów
XIV. Kruszyna
XV. Kłomnice
XVI. Dąbrowa Zielona

Rycina 2
Punkty gastronomiczne na obszarze powiatu częstochowskiego (stan na 28 sierpnia 2025 r.).
Źródło: Opracowanie własne na podstawie: bazy Centralnej Ewidencji i Informacji o Działalności Gospodarczej, danych z Głównego Urzędu Statystycznego, Map Targeo, Geoportal 360, stron internetowych poszczególnych gmin powiatu częstochowskiego, portali internetowych.

Na obszarze powiatu częstochowskiego działają następujące punkty gastronomiczne: restauracje – 28, pizzerie – 11, kawiarnie i cukiernie – 13 (część z lokali działa sezonowo), bary – 5, smażalnie ryb – 5, pozostałe (gospody, zajazdy, domy rekolekcyjne, kebaby, ogródki letnie, food trucki) – około 15 punktów. Gmina Olsztyn wyróżnia się największą liczbą lokali gastronomicznych (ponad 20), co potwierdza jej znaczenie turystyczne dla regionu. Gminy Blachownia, Janów i Poczesna również oferują rozbudowaną bazę gastronomiczną. Niestety w gminach takich jak Rędziny, Lelów, Kruszyna czy Dąbrowa Zielona baza gastronomiczna jest skromna i głównie lokalna. Najmniejsza gmina powiatu częstochowskiego Starcza, nie posiada na swoim obszarze lokalu gastronomicznego. Najpowszechniejszym rodzajem gastronomii na obszarze powiatu są restauracje. Dominują w większych miejscowościach turystycznych i przy głównych trasach regionu. Pizzerie są popularne w średnich miejscowościach, często jako jedyny typ lokalu. Lokale takie jak smażalnie ryb, zajazdy, sale przyjęć czy domy rekolekcyjne występują rzadziej, ale pełnią ważną rolę w kontekście turystyki tematycznej i sezonowej. Sezonowe punkty (np. lodziarnie, ogródki letnie) są typowe dla takich gmin jak Blachownia, Olsztyn, Janów czy Lelów.

Tradycje kulinarne powiatu częstochowskiego są głęboko zakorzenione w historii regionu i odzwierciedlają jego rolniczy charakter, skromne warunki glebowe oraz wpływy kuchni śląskiej, jurajskiej i staropolskiej. Koła Gospodyń Wiejskich działające na terenie powiatu częstochowskiego odgrywają istotną rolę w kultywowaniu i promowaniu lokalnych tradycji kulinarnych. Dzięki ich aktywności organizowany jest Festiwal Kół Gospodyń Wiejskich z powiatu częstochowskiego – cykliczne wydarzenie, którego celem jest pielęgnowanie dziedzictwa kulturowego regionu, popularyzacja kuchni regionalnej oraz prezentacja lokalnego rękodzieła. Festiwal gromadzi przedstawicielki kół z całego powiatu, tworząc przestrzeń do wymiany doświadczeń, integracji i wspólnego celebrowania tradycji.

W powiecie częstochowskim odbywa się kilka ciekawych festiwali kulinarnych i wydarzeń gastronomicznych, które promują lokalne smaki, produkty tradycyjne oraz kulturę regionu. Do najważniejszych należą:

- „Święto Ciulimu – Czulentu". Festiwal Kultury Polskiej i Żydowskiej organizowany w Lelowie otrzymał certyfikat nadany przez Częstochowską Organizację Turystyczną jako Produkt Turystyczny, a potrawa „Ciulim lelowski" i „Czulent lelowski" otrzymały certyfikat potrawy regionalnej. „Ciulim lelowski" został wpisany na Listę Produktów Tradycyjnych woj. śląskiego w kategorii „gotowe dania i potrawy" (https://www.lelow.pl/kategorie/swieto-ciulimu-czulentu).
- „Święto Pstrąga w Złotym Potoku" to organizowane przez gminę Janów w Złotym Potoku coroczne wydarzenie kulinarne i rekreacyjne, które odbywa się latem nad stawem Amerykan. W 2025 roku odbyła się jego 27. edycja, a jej program obejmował: pokazy kulinarne, degustacje pstrąga i inne atrakcje.

Fot. 1
„Święto Ciulimu – Czulentu". Festiwal Kultury Polskiej i Żydowskiej w Lelowie. Potrawy
Źródło: https://www.polskieszlaki.pl/swieto-ciulimu-i-czulentu-w-lelowie.htm

Fot. 2
„Święto Pstrąga w Złotym Potoku" w gminie Janów. Potrawy
Źródło https://gazetaregionalna.com/ryby/

— „Święto Ogórka" we wsi Ulesie w Gminie Dąbrowa Zielona to lokalna impreza organizowana w celu promocji lokalnych produktów. Wydarzenie, organizowane przez lokalne Koło Gospodyń Wiejskich oferuje degustację ogórkowych potraw, oraz wsparcie lokalnych działalności gospodarczych.

Fot. 3
„Święto Ogórka" we wsi Ulesie w Gminie Dąbrowa Zielona. Potrawy
Źródło:https://www.radiojura.pl/swieto-ogorka-w-gminie-dabrowa-zielona-nietypowe-wydarzenie-organizuja-27-lipca-w-ulesiu.html

Turystyczna baza noclegowa

Turystyczna baza noclegowa w powiecie częstochowskim jest zróżnicowana (zob. wykres 2). Największą bazę noclegową posiadają gminy Janów i Olsztyn. Gmina Janów dysponuje zróżnicowaną i dobrze rozwiniętą bazą noclegową, dostosowaną do potrzeb zarówno turystów indywidualnych, jak i grup zorganizowanych. Łączna liczba miejsc noclegowych przekracza 630, co czyni gminę atrakcyjnym miejscem wypoczynku na terenie Jury Krakowsko-Częstochowskiej. W skład bazy noclegowej wchodzą: Hotel trzygwiazdkowy – oferujący komfortowe warunki zakwaterowania dla 150 osób; Dwa schroniska młodzieżowe – zapewniające łącznie 115 miejsc noclegowych (idealne dla grup szkolnych i turystów indywidualnych); Ośrodek wypoczynkowy Związku Harcerstwa Polskiego – dysponujący 50 miejscami (często wykorzystywany na potrzeby obozów harcerskich i kolonii); Ośrodek wypoczynkowy CARITAS – oferujący 120 miejsc (przystosowany do organizacji wypoczynku dla dzieci, młodzieży oraz osób starszych); Trzy pozostałe obiekty noclegowe (w tym pensjonaty i domy gościnne) – zapewniające łącznie 92 miejsca; Gospodarstwa Agroturystyczne oraz domki na wynajem – 28 obiektów, które łącznie oferują ponad 200 miejsc noclegowych (stanowią doskonałą alternatywę dla osób poszukujących wypoczynku w otoczeniu natury i lokalnej gościnności). Gmina Olsztyn, dysponuje dobrze rozwiniętą i zróżnicowaną bazą noclegową, która odpowiada na potrzeby zarówno turystów indywidualnych, jak i grup zorganizowanych. Na terenie miejscowości funkcjonują 33 obiekty noclegowe, w tym dwie agroturystyki, które oferują wypoczynek w bezpośrednim kontakcie z naturą i lokalną kulturą. Oferta noclegowa obejmuje: pensjonaty i domy gościnne, pokoje i apartamenty na wynajem, domki letniskowe, obiekty agroturystyczne, ośrodki wypoczynkowe. Dzięki różnorodności standardu i lokalizacji, gminy Janów i Olsztyn stanowią atrakcyjne miejsce wypoczynku dla miłośników Jury Krakowsko-Częstochowskiej, pieszych wędrówek, wspinaczki oraz turystyki rodzinnej.

W gminie Konopiska baza noclegowa obejmuje pięć gospodarstw agroturystycznych, oferujących wypoczynek w spokojnym, wiejskim otoczeniu. Szczególnym miejscem jest Harcerski Ośrodek Szkoleniowo-Wypoczynkowy „Pająk", który dysponuje sześcioma murowanymi domkami, mogącymi łącznie pomieścić do 120 osób. Dodatkowo, w Parku Korzonek znajduje się kameralny domek przeznaczony dla czterech osób. W gminie Kłomnice działają cztery obiekty noclegowe, z czego trzy to gospodarstwa agroturystyczne. Łączna liczba dostępnych miejsc noclegowych wynosi 155, co czyni gminę atrakcyjną dla osób poszukujących wypoczynku w otoczeniu przyrody i lokalnej gościnności. Z kolei gmina Lelów oferuje wypoczynek w wyjątkowym, sielskim klimacie. Wśród dostępnych obiektów znajdują się: domki na wynajem, pięć gospodarstw agroturystycznych oraz zabytkowy pałac w Nakle. Łącznie gmina dysponuje około 60–70 miejscami

noclegowymi, co sprawia, że jest doskonałym wyborem dla osób szukających ciszy, kontaktu z naturą i autentycznego wiejskiego klimatu.

Gminy powiatu częstochowskiego

I. Blachownia
II. Konopiska
III. Starcza
IV. Kamienica Polska
V. Poczesna
VI. Olsztyn
VII. Janów
VIII. Lelów
IX. Koniecpol
X. Przyrów
XI. Mstów
XII. Rędziny
XIII. Mykanów
XIV. Kruszyna
XV. Kłomnice
XVI. Dąbrowa Zielona

Rycina 3
Baza noclegowa na obszarze powiatu częstochowskiego (stan na 28 sierpnia 2025 r.)
Źródło: Opracowanie własne na podstawie: baza Centralnej Ewidencji i Informacji o Działalności Gospodarczej, danych Głównego Urzędu Statystycznego, Map Targeo, Geoportal 360, stron internetowych poszczególnych gmin powiatu częstochowskiego, portali internetowych z bazę noclegową.

W powiecie Częstochowskim, gminy takie jak Rędziny, Starcza, Kruszyna oraz Dąbrowa Zielona nie posiadają rozwiniętej bazy noclegowej. Brak obiektów hotelowych, pensjonatów czy gospodarstw agroturystycznych sprawia, że są to obszary o mniejszym znaczeniu turystycznym, skupiające się głównie na funkcjach rolniczych i lokalnych inicjatywach społecznych. Niemniej jednak ich położenie

w pobliżu większych ośrodków oraz walory krajobrazowe mogą stanowić potencjał rozwojowy dla przyszłych inwestycji w sektorze turystyki i wypoczynku.

Turystyczna baza uzupełniająca

W zakres turystycznej bazy uzupełniającej wchodzą urządzenia turystyczne, m.in. obiekty, urządzenia sportowe oraz urządzenia paraturystyczne, zaspokajające potrzeby stałych mieszkańców oraz turystów, jak np. instytucje kulturalne; usługi handlu, rzemiosła, zdrowia; infrastruktura techniczna (Pawlikowska-Piechotka, 2009).

Powiat częstochowski może pochwalić się bogatą i zróżnicowaną turystyczną bazą uzupełniającą, która wspiera rozwój turystyki i rekreacji na jego obszarze (zob. tab. nr 2). W gminie Janów znajduje się rozbudowana infrastruktura sportowo-rekreacyjna, obejmująca m.in. ośrodek jeździecki, stajnię, pole do paintballa, kąpielisko z plażą, wypożyczalnię rowerów, wieżę obserwacyjną oraz strzelnicę. Dodatkowo, mieszkańcy i turyści mogą korzystać z placu zabaw, boiska do piłki plażowej, dwóch siłowni zewnętrznych, boiska do piłki nożnej, kortu tenisowego, boiska do koszykówki, kompleksu sportowego Orlik 2012 oraz hali sportowej.

W Gminie Blachownia należy wyróżnić cztery główne obiekty sportowe: hala widowiskowo-sportowa, stadion sportowy Ośrodka Sportu i Rekreacji z przylegającym do niego kortem tenisowym i skateparkiem, boisko szkolne „Orlik", Boisko Sportowe „Sahara" wraz z kortem tenisowym. W skład obiektów zarządzanych przez Ośrodek Sportu i Rekreacji wchodzą: skatepark, brodzik czynny w sezonie letnim, kort tenisowy, sauna, siłownia, wypożyczalnia rowerów oraz plac do street workoutu. W ramach rozwoju infrastruktury powstał również tor wrotkarski wokół stadionu sportowego. Blisko centrum Blachowni znajduje się zbiornik retencyjny na rzece Stradomce, którego powierzchnia wynosi 47 ha. Zbiornik oprócz funkcji przeciwpowodziowej, pełni rolę rekreacyjną. Jest uznawany za jeden z największych walorów turystycznych gminy Blachownia (https://pl.wikipedia.org/wiki/Blachownia_zbiornik_wodny). Nad zalewem działa wypożyczalnia sprzętu pływającego.

Gmina Poczesna oferuje kompleks sportowy przy Zespole Szkół w Hucie Starej B, obejmujący boisko do piłki nożnej oraz wielofunkcyjne boisko do siatkówki i koszykówki. Na terenie sportowo-rekreacyjnym znajdują się również dwa pełnowymiarowe boiska do piłki nożnej, odkryty basen, kort tenisowy, miasteczko ruchu drogowego, siłownia zewnętrzna oraz aż dziesięć placów zabaw, co czyni gminę przyjazną rodzinom z dziećmi.

W Rędzinach dostępna jest hala sportowa z widownią na 180 osób oraz kompleks „Orlik", który obejmuje boisko do piłki nożnej ze sztuczną nawierzchnią,

boisko do koszykówki i siatkówki pokryte poliuretanem, a także dodatkowe boisko do piłki ręcznej i drugie boisko do koszykówki. Całość uzupełnia czterotorowa bieżnia oraz skocznia do skoku w dal. Gmina dysponuje również dwoma boiskami do piłki nożnej oraz torem żużlowym klubu UKS Speedway Rędziny.

W Dąbrowie Zielonej znajduje się wyjątkowo rozbudowana, jak na gminę wiejską, infrastruktura rekreacyjna. Obejmuje ona dwie duże i jedną małą salę gimnastyczną przy szkołach podstawowych, trzynaście placów zabaw i obiektów rekreacyjnych, w tym budynek wielofunkcyjny w Dąbku z boiskiem trawiastym oraz przystanią kajakową. Szczególną atrakcją jest „Ogród Bajek" w Dąbrowie Zielonej, gdzie odwiedzający mogą podziwiać postacie z bajek. Dodatkowo, przy kompleksie sportowym Orlik 2012 znajduje się siłownia zewnętrzna, boisko trawiaste w Olbrachcicach oraz boiska do piłki nożnej w Soborzycach i Dąbrowie Zielonej.

Tabela 2
Baza uzupełniająca na obszarze powiatu częstochowskiego (*stan na 28 sierpnia 2025 r.*)

Gmina	Blachownia	Dąbrowa Zielona	Janów	Kamienica Polska	Kłomnice	Koniecpol	Konopiska	Kruszyna	Lelów	Mstów	Mykanów	Olsztyn	Poczesna	Przyrów	Rędziny	Starcza
Baza uzupełniająca*	9	13	12	2	5	7	5	4	8	4	3	5	9	2	11	3
Plac zabaw	6	3	19	1	11	2	9	4	1	19	4	7	6	4	4	1
Basen/Brodzik otwarty	1												1			
Kąpielisko/Plaża	1		4	1		1	1			1						
Wypożyczalnia rowerów			2													

* Elementami bazy uzupełniającej występującymi na obszarze powiatu częstochowskiego ziemskiego są: bieżnie tartanowe, boiska do koszykówki, boiska piłkarskie, boiska do piłki ręcznej, boiska siatkówki plażowej, boiska do piłki siatkowej, hale sportowe, korty tenisowe, miasteczo ruchu drogowego, ośrodki jazdy konnej, orliki, plac do street workoutu, pola do paintballu, pole golfowe, przystanie kajakowe, sauna, siłownie, skatepark, sale gimnastyczne, siłownie zewnętrzne, skocznie do skoku w dal, stadion lekkoatletyczny, stadiony piłkarskie, stajnie, strzelnica, tor wrotkarski, tor żużlowy, wieża obserwacyjna.

Źródło: Opracowanie własne na podstawie: danych z Głównego Urzędu Statystycznego, Map Targeo, Geoportal 360, stron internetowych poszczególnych gmin powiatu częstochowskiego.

Gmina Koniecpol dysponuje stadionem sportowym przy Ośrodku Kultury Sportu i Rekreacji, halą sportową przy Zespole Szkół nr 2 oraz dwoma boiskami typu Orlik 2012 przy lokalnych szkołach. Dodatkowo, w okolicznych lasach i na

łąkach wytyczono ścieżki rowerowe i trasy do nordic walkingu. Gmina oferuje również możliwość uczestnictwa w spływach kajakowych na rzece Pilicy oraz wypoczynek nad kąpieliskiem z plażą.

Ważnymi punktami na mapie powiatu Częstochowskiego są 2 obiekty zlokalizowane na terenie gminy Konopiska. Jednym z najbardziej prestiżowych obiektów jest pole golfowe z 18 dołkami, które stanowi unikalną atrakcję w skali regionu i umożliwia organizację wydarzeń sportowych o zasięgu ogólnopolskim. Ważnym punktem na mapie sportowej Konopisk jest stadion lekkoatletyczny im. Ireny Szewińskiej, który oferuje profesjonalne warunki do uprawiania konkurencji lekkoatletycznych. Ponadto, atrakcją turystyczną gminy Konopiska jest zbiornik wodny „Pająk", jeden z najczystszych w regionie i chętnie odwiedzanych.

Najmniejszą turystyczną bazą uzupełniającą dysponują gminy Kamienica Polska i Przyrów. Gmina Kamienica Polska oferuje podstawową, lecz funkcjonalną infrastrukturę sportową. Na jej terenie znajduje się plac zabaw, boisko do piłki nożnej, wykorzystywane do rozgrywek amatorskich i szkolnych, a także hala sportowa, umożliwiająca organizację zajęć sportowych niezależnie od warunków pogodowych. Z kolei gmina Przyrów dysponuje jedynie boiskiem do piłki nożnej, a także ośrodkiem jazdy konnej, który stanowi atrakcyjną propozycję dla miłośników sportów jeździeckich i rekreacji na świeżym powietrzu. Obiekt ten sprzyja zarówno nauce jazdy konnej, jak i organizacji wydarzeń związanych z kulturą hippiczną.

Warto podkreślić, iż w dokumentach planistycznych gmin, np. w strategii rozwoju gminy Przyrów na lata 2023–2030 przewidziano m.in.: zagospodarowanie i promocje szlaku pieszo-rowerowego wzdłuż rzeki Wiercicy; budowa spójnego systemu tras rowerowych; uregulowanie ruchu na rzece Wiercicy i przystosowanie do wykorzystania jej pod sport i turystykę wodną (m.in. spływy kajakowe); zagospodarowanie i oznakowanie ścieżek rowerowych i tras turystycznych; rozbudowa i modernizacja infrastruktury sportowej i rekreacyjnej oraz zwiększenie dostępności dla mieszkańców gminy i turystów; modernizacja i udostępnienie kąpieliska dla mieszkańców (*Strategia rozwoju gminy Przyrów na lata 2023–2030*).

Zakończenie

Powiat częstochowski wyróżnia się bogactwem walorów turystycznych i rekreacyjnych, które czynią go atrakcyjnym miejscem wypoczynku zarówno dla mieszkańców, jak i odwiedzających. Do najważniejszych atutów regionu należą walory przyrodnicze, takie jak malownicze krajobrazy Jury Krakowsko-Częstochowskiej, wapienne ostańce, doliny i lasy, które sprzyjają turystyce pieszej, rowerowej i wspinaczce. Istotnym elementem oferty turystycznej są liczne szlaki –

m.in. Szlak Orlich Gniazd, Szlak Zygmunta Krasińskiego czy Szlak Przełomu Warty – a także trasy rowerowe MTB, szosowe i rekreacyjne, które systematycznie się rozwijają.

Region oferuje także bogatą infrastrukturę rekreacyjną, obejmującą kąpieliska, plaże, przystanie kajakowe, wieże widokowe, pole golfowe w Konopiskach, stadniny koni w Janowie i Przyrowie oraz tor żużlowy w Rędzinach. Dziedzictwo kulturowe powiatu reprezentują m.in. ruiny zamku w Olsztynie, Pałac w Nakle oraz liczne festiwale kulinarne, takie jak Święto Pstrąga czy Święto „Ciulimu-Czulentu". Gastronomia regionalna, oparta na lokalnych produktach i tradycyjnych recepturach, stanowi istotny element tożsamości kulinarnej regionu. Uzupełnieniem oferty są obiekty sportowe – hale, boiska, korty tenisowe, skateparki, siłownie zewnętrzne oraz miasteczka ruchu drogowego.

Istniejąca infrastruktura turystyczna i rekreacyjna w powiecie częstochowskim w dużym stopniu odpowiada na potrzeby mieszkańców i turystów, szczególnie w gminach takich jak Janów i Olsztyn, które dysponują rozbudowaną bazą noclegową, gastronomiczną i rekreacyjną. Gminy Konopiska, Blachownia, Poczesna i Koniecpol oferują szeroką gamę obiektów sportowych i wypoczynkowych, w tym hale, boiska, kąpieliska, trasy rowerowe i obiekty tematyczne. Gminy Rędziny, Dąbrowa Zielona, Lelów i Kłomnice posiadają rozwiniętą infrastrukturę sportową i rekreacyjną, jednak ich baza noclegowa i gastronomiczna jest ograniczona. Natomiast gminy Starcza, Kruszyna, Kamienica Polska i Przyrów dysponują jedynie podstawową infrastrukturą, co znacząco ogranicza ich potencjał turystyczny.

Pomimo licznych atutów, rozwój turystyki i rekreacji w regionie napotyka się na kilka istotnych barier. Przede wszystkim, brak rozwiniętej bazy noclegowej w części gmin (np. Rędziny, Starcza, Kruszyna, Dąbrowa Zielona) ogranicza możliwość rozwoju turystyki pobytowej. Komunikacja publiczna w powiecie częstochowskim jest przede wszystkim narzędziem dla mieszkańców i uczniów, ale umożliwia też dojazd turystom do głównych atrakcji Jury. Jednak w przypadku osób niezmotoryzowanych planujących weekendowy wypad, konieczne jest wcześniejsze sprawdzenie rozkładów, ponieważ częstotliwość kursów poza miastem jest ograniczona. Nierównomierne rozmieszczenie infrastruktury, z koncentracją inwestycji w wybranych gminach, prowadzi do dysproporcji w dostępności usług turystycznych. Ograniczona baza gastronomiczna w mniejszych gminach wpływa negatywnie na komfort turystów i zmniejsza atrakcyjność regionu. Dodatkowo, sezonowość ruchu turystycznego, szczególnie w przypadku obiektów plenerowych i sezonowych punktów gastronomicznych, ogranicza pełne wykorzystanie potencjału regionu. Brakuje również zintegrowanego systemu informacji turystycznej, który mógłby wspierać planowanie pobytu i promocję lokalnych atrakcji. Ograniczenia finansowe gmin utrudniają modernizację istniejących obiektów oraz rozwój nowych inicjatyw, co stanowi kolejne wyzwanie dla rozwoju turystyki w powiecie częstochowskim.

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Autorzy deklarują brak potencjalnych konfliktów interesów w odniesieniu do badań, autorstwa i/lub publikacji artykułu *Zagospodarowanie turystyczne i rekreacyjne w powiecie częstochowskim (ziemskim) – zarys problematyki.*

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WKŁAD AUTORÓW

Beniamin Piksa: konceptualizacja, zarządzanie danymi, pozyskanie funduszy, przeprowadzenie badań, metodologia, administracja projektu, zasoby, walidacja, wizualizacja, pisanie – pierwszy szkic, pisanie – recenzja i edycja;
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BIOGRAMY, DYSKUSJE, POLEMIKI, RECENZJE, PRZEGLĄD WYDAWNICTW, SPRAWOZDANIA

SPORT I TURYSTYKA
Środkowoeuropejskie Czasopismo Naukowe

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FROM 1997 TO TODAY: THE PAST, PRESENT, AND FUTURE OF *SPORT I TURYSTYKA*

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Od 1997 roku do dziś: Przeszłość, teraźniejszość i przyszłość czasopisma „Sport i Turystyka”

Streszczenie

Niniejszy edytorial stanowi refleksję nad przeszłością, teraźniejszością i przyszłością czasopisma „Sport i Turystyka” („Sport and Tourism. Central European Journal”). Założone w 1997 roku czasopismo rozwinęło się od lokalnie zakorzenionego rocznika do kwartalnika naukowego o wyraźnym profilu środkowoeuropejskim i stopniowo rosnącej widoczności międzynarodowej. W tekście przedstawiono tę ewolucję, podkreślając aktualną różnorodność tematyczną czasopisma, dojrzałość redakcyjną, model otwartego dostępu oraz zgodność ze współczesnymi standardami publikowania naukowego. Wskazano również na postępy w zakresie umiędzynarodowienia, obejmujące rosnący udział artykułów anglojęzycznych, szerszą międzynarodową reprezentację autorów i recenzentów, coraz większe geograficzne zróżnicowanie publikacji oraz wzrost widoczności czasopisma w międzynarodowym środowisku indeksacyjnym. W zakończeniu zidentyfikowano kluczowe priorytety dalszego rozwoju, obejmujące wzmacnianie jakości naukowej, selektywności redakcyjnej, pozycji międzynarodowej, infrastruktury cyfrowej oraz długofalowej stabilności. Łącznie ele-

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menty te ukazują postępującą instytucjonalną dojrzałość czasopisma oraz jego ambicję do umacniania swojej pozycji w międzynarodowym krajobrazie komunikacji naukowej.

Słowa kluczowe: sport i turystyka; kultura fizyczna; czasopismo.

Abstract

This editorial reflects on the past, present, and future of *Sport i Turystyka* (Sport and Tourism Central European Journal). Established in 1997, the journal has developed from a locally rooted annual publication into a quarterly scholarly journal with a distinct Central European profile and steadily growing international visibility. The editorial outlines this evolution, emphasizing the journal's current thematic diversity, editorial maturity, open-access model, and alignment with contemporary standards of scholarly publishing. It also highlights recent progress in internationalization, including the increasing share of English-language articles, the broader international representation of authors and reviewers, the growing geographical diversification of contributions, and the journal's expanding visibility within the international indexing environment. Finally, the text identifies key priorities for future development, including further strengthening scientific quality, editorial selectivity, international positioning, digital infrastructure, and long-term sustainability. Together, these elements illustrate the journal's ongoing institutional maturation and its ambition to consolidate its place within the international scholarly landscape.

Keywords: sport and tourism; sport sciences; journal.

The Past

The history of *Sport i Turystyka* dates back to 1997, when the journal was established on the initiative of Professor Joanna Rodziewicz-Gruhn and Professor Eligiusz Małolepszy. Since its inception, the journal has been published by the Scientific Publishing House of Jan Dlugosz University in Częstochowa. From the outset, it was conceived as a scholarly platform dedicated to the dissemination of research in the broadly understood field of physical culture, sport, and tourism. In its earliest phase, between 1997 and 2004, it was published annually under the title Research Papers. Physical Culture (ISSN 1505-4241), reflecting both its academic character and its disciplinary foundations.

A new stage in the journal's development began in 2005, when it adopted the title Research Papers of the Jan Dlugosz University of Częstochowa – Physical Culture Studies and Research (ISSN 1895-8680). Under this title, the journal continued to strengthen its scholarly profile and institutional identity. Between 2005 and 2012, it remained an annual publication. As its editorial activity and scientific ambitions expanded, the journal increased its publication frequency, first moving to a biannual format, and from 2016 onward establishing itself as a quarterly journal. This progression reflected the journal's gradual maturation, its growing editorial capacity, and its increasing responsiveness to the evolving needs of the academic community.

A decisive milestone was reached in the third quarter of 2018, when the journal began to be published under its current title, *Sport i Turystyka* (Sport and Tourism Central European Journal, ISSN 2545-3211). This change marked more than a formal renaming. It signaled a broader transformation in the journal's scope, visibility, and aspirations, positioning it more clearly within the international scientific landscape while preserving continuity with the scholarly tradition on which it had been built. Seen from a historical perspective, the development of the journal from a locally rooted annual publication into a quarterly journal with a distinct Central European and increasingly international profile illustrates a process of steady institutional and editorial evolution.

The Present

Today, *Sport i Turystyka* combines continuity with its academic roots and a clearly strengthened contemporary publishing profile. Its scope encompasses research in sport, tourism, physical culture, and related interdisciplinary fields, offering a forum for scholarly dialogue that links theoretical reflection with empirical inquiry. At the same time, the journal's present identity is shaped by increasing editorial maturity and by the adoption of standards expected of modern scholarly periodicals. The journal is managed through the Open Journal Systems (OJS) platform, published in open access, and assigns Digital Object Identifiers (DOIs) to all articles in order to ensure permanent accessibility and traceability (Crossref, n.d.). Its peer review process follows a double-blind model and involves at least two independent reviewers for each manuscript. The journal also operates in accordance with the principles of publication ethics promoted by the Committee on Publication Ethics (COPE), reinforcing its transparency, credibility, and alignment with internationally recognized standards of scholarly publishing (Committee on Publication Ethics [COPE], 2017, 2022).

The journal publishes approximately 32 articles annually. Its thematic profile is internally diverse, with a strong historical and humanities-oriented core within the field of physical culture studies, accompanied by a parallel stream of publications in sport sciences, health sciences, and tourism (Sport and Tourism Central European Journal, n.d.). This balance reflects both continuity with the journal's scholarly tradition and its responsiveness to the broader evolution of research in these fields. Figure 1 presents the percentage distribution of articles across the journal's principal sections.

An important dimension of the journal's current development is its progressive internationalization. While remaining firmly rooted in its Central European academic identity, *Sport i Turystyka* is increasingly oriented toward a broader international scholarly audience. This shift is visible in the growing share of Eng-

lish-language articles, the rising participation of authors with foreign affiliations, and the gradual expansion of the international reviewer base. Following the implementation in 2020 of a plan to transition toward publishing in English, the proportion of English-language articles increased from 33% in 2019 to 97% in 2023, before declining slightly to 91% in 2024 and 88% in 2025. Over the same period, the share of authors with foreign affiliations rose substantially, reaching 69% in 2025, whereas the proportion of reviewers with foreign affiliations increased more moderately and stabilized at around one third in recent years. These developments were further supported by the Development of Scientific Journals program, implemented in 2022–2024. Figure 2 illustrates these changes.

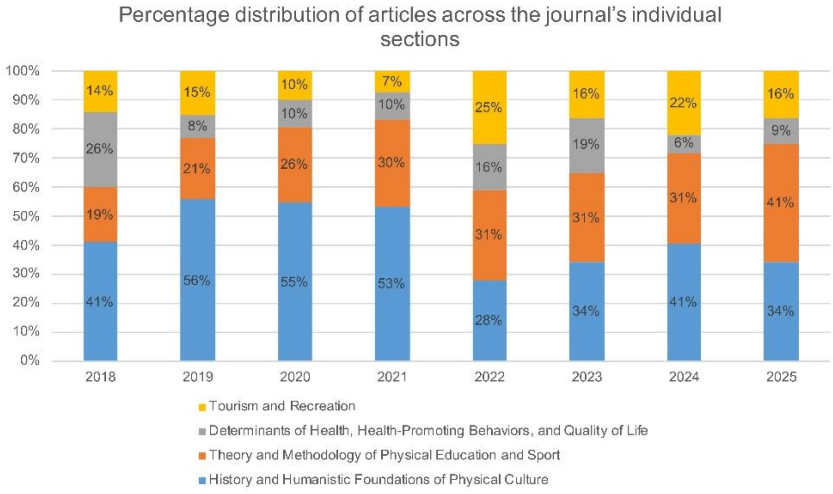

Figure 1
Percentage distribution of articles published across the journal's individual sections.
Source: editorial data based on journal records.

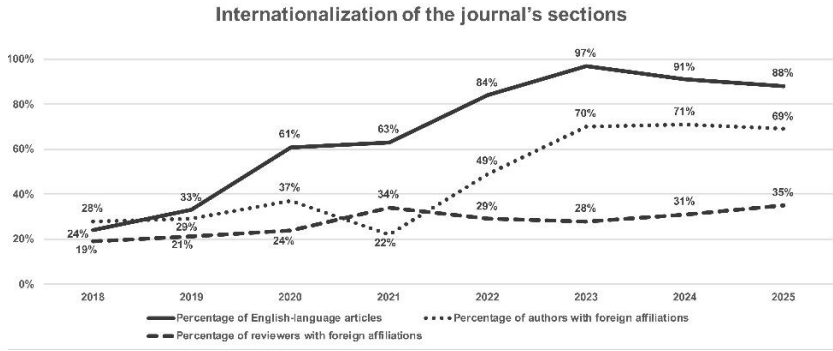

Figure 2
Changes in the journal's internationalization between 2018 and 2025.
Source: editorial data based on journal records.

Complementing this picture, Figure 3 shows a gradual broadening of the journal's geographical profile. Although Poland remains the main contributing country, its relative share has declined over time, accompanied by a stable presence of contributions from other European countries and a growing share from Asia. Taken together, these patterns point to a progressively more diversified international authorship structure.

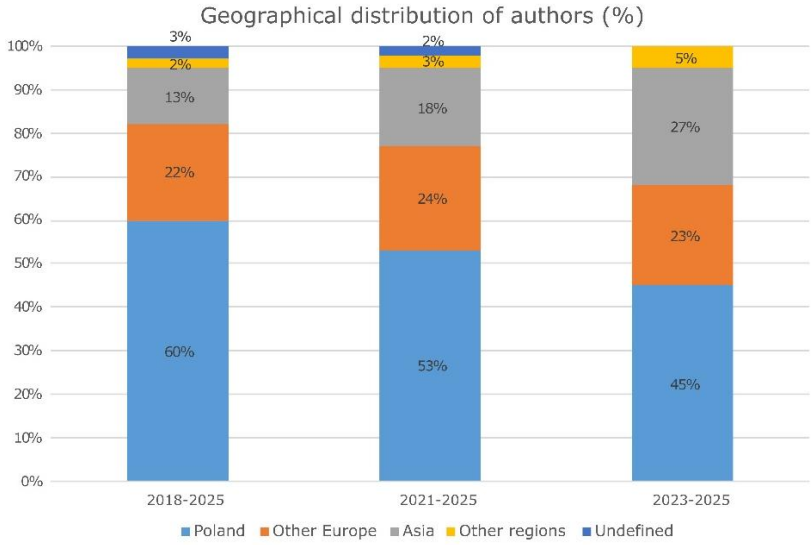

Figure 3
Progressive geographical diversification of Scopus-indexed publications across three nested periods.
Source: editorial calculations based on Scopus-indexed journal records.

The journal's current standing is also reflected in its visibility across the scholarly communication landscape. At present, it is indexed or listed in a number of international and national scholarly information services, including Scopus, DOAJ, ERIH PLUS, and SPORTDiscus (EBSCOhost). Its digital visibility is further supported by its presence in additional scholarly platforms, repositories, and library-based systems, as well as by its dedicated online platform and archival access to current and past issues. This growing visibility is also reflected in the journal's citation performance within Scopus. Since its acceptance for indexation in 2021, the journal's CiteScore has shown a clear upward trend, increasing from approximately 0.1 in 2021 to approximately 0.5 in 2024 (Scopus, n.d.). This pattern suggests a gradual strengthening of the journal's position relative to other titles in the same Scopus category. According to Scopus projections, the journal's CiteScore for 2025 is expected to reach 1.0. Figure 4 presents this upward trajectory.

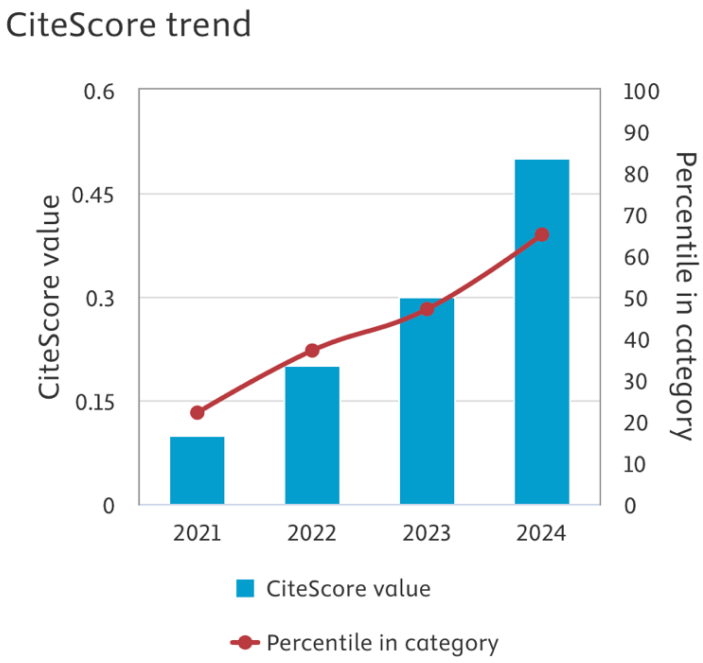

Figure 4
Growth trend in CiteScore (Scopus) in the years 2021–2024.
Source: Scopus Source details (source ID 21101067745, accessed 9 March 2026).

The Future

A key priority for the journal in the coming years is the further enhancement of scientific quality, editorial selectivity, and the overall maturity of its publishing processes. This requires a stable inflow of high-quality submissions and a clear preference for articles with strong scholarly relevance and citation potential. Review articles, methodological papers, and thematically focused original studies addressing internationally relevant topics may be particularly important in this regard. Continued progress will also depend on the professionalization of editorial work, including efficient manuscript handling, the development of a strong and internationally engaged reviewer pool, reviewer recognition mechanisms, and the active contribution of the scientific board to the maintenance of academic standards. The continued use of online-first publication, immediately after production is completed, may further improve the visibility and citation potential of accepted articles.

Another major direction concerns the journal's international profile and scholarly standing. Further progress in this area depends on a broader partici-

pation of authors, reviewers, and editorial board members from abroad, as well as on a more active presence within international research networks. Thematic calls for papers, invited editorials, invited review articles, and carefully designed special issues may help increase thematic visibility, attract contributions from broader academic communities, and strengthen the journal's role in international scholarly exchange (Huang et al., 2022). These efforts may also support the journal's further recognition within the global research environment, including its current evaluation by Web of Science (Clarivate).

The journal's long-term advancement will also require continued investment in digital infrastructure, dissemination, and organizational sustainability. In contemporary scholarly publishing, this includes the implementation of modern metadata and publishing standards, particularly JATS XML, to improve interoperability, discoverability, indexing quality, archival durability, and online distribution. Such developments may also facilitate the creation of additional publication formats and strengthen the journal's wider digital presence. At the same time, more systematic promotion of published articles through digital communication channels, including social media and ready-to-use dissemination materials for authors, may broaden the journal's reach and reinforce its visibility within the academic community. These activities will require a sustainable financial and organizational framework capable of supporting high editorial standards, English-language copyediting, and the journal's continued international growth.

DECLARATION OF CONFLICTING INTERESTS

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Błażej Cieślik: Conceptualization, Writing - Original Draft, Writing - Review and Editing.
Daniel Bakota: Conceptualization, Writing - Original Draft, Writing - Review and Editing.
Teresa Drozdek-Małolepsza: Conceptualization, Writing - Original Draft, Writing - Review and Editing.
Eligiusz Małolepszy: Conceptualization, Writing - Original Draft, Writing - Review and Editing. All authors approved the final version of the manuscript.

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