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Rejuvenating mind, body, and spirit: Exploring the role of physical activity in health and rehabilitation institutions' offerings in Serbia

Ivan Živković^{1*}, Ivana Brdar¹, Miroslav Knežević¹

¹ Singidunum University, Belgrade, Serbia

Abstract

Purpose: This paper focuses on physical activity and body care as indicators of wellness offerings in health-rehabilitation institutions in Serbia. The goal is to determine if these institutions can become leaders in the tourism market by providing wellness services. **Methodology:** A measuring instrument was developed for research purposes. This tool aimed to gather data regarding services associated with physical activity and body care, serving as a crucial indicator of the wellness offerings. Its purpose was to enable the comprehensive evaluation of each center based on the investigated indicator. **Findings:** After analyzing 20 institutions, Banja Junaković, Ivanjica, and Čigota achieved the highest average score of 0.83, reflecting their comprehensive services and resulting in a final score of 5. Two institutions scored 0.79, coming close to an overall rating of five. All institutions provide programs for assessing the current state of the body. **Implications:** The study enhances understanding of physical activity and bodily well-being's significance in advancing health and rehabilitation facilities, aligning with current wellness tourism trends. Results can aid hotel and wellness center managers in the health and wellness tourism industry in refining their business strategies.

Keywords: health tourism, wellness, health, physical activity, recovery

JEL classification: I11, I12, L83, Z31, Z32

Podmlađivanje uma, tela i duha: Istraživanje uloge fizičke aktivnosti u ponudi zdravstvenih i rehabilitacionih ustanova u Srbiji

Sažetak

Svrha: Rad se fokusira na fizičku aktivnost i negu tela kao indikatore velnes ponude u zdravstveno-rehabilitacionim ustanovama u Republici Srbiji. Cilj je utvrditi da li ove institucije mogu postati lideri na turističkom tržištu pružanjem velnes usluga. **Metodologija:** Za potrebe istraživanja kreiran je merni instrument na osnovu odgovarajućeg velnes modela u skladu sa specifičnostima zdravstveno-rehabilitacionih ustanova. Na ovaj način bi se

* Corresponding author: ivan_zivkovic@outlook.com



prikupile informacije o uslugama koje se odnose na telesnu aktivnost i negu tela kao važnog indikatora velnes ponude. Namera je da se svaki centar adekvatno oceni prema ispitivanom indikatoru. **Rezultati:** Nakon analize 20 ustanova, Banja Junaković, Ivanjica i Čigota su ostvarile najvišu prosečnu ocenu od 0,83, što odražava njihove sveobuhvatne usluge i rezultiralo je konačnom ocenom 5. Dve institucije su dobile ocenu 0,79, što je blizu ukupnoj oceni od pet. Sve institucije obezbeđuju programe za procenu trenutnog stanja tela za prilagođene programe aktivnosti. **Implikacije:** Sprovedeno istraživanje produbljuje razumevanje značaja telesne aktivnosti i nege tela u smislu razvoja ponude zdravstveno-rehabilitacionih ustanova u skladu sa savremenim trendovima u velnes turizmu. Rad može biti podrška menadžmentu hotela i velnes centara u oblasti zdravstvenog i velnes turizma u redefinisanoj strategije razvoja poslovanja.

Cljučne reči: zdravstveni turizam, velnes, zdravlje, fizička aktivnost, oporavak
JEL klasifikacija: I11, I12, L83, Z31, Z32

1. Introduction

Recognizing the importance of health, many individuals are adopting lifestyle changes to preserve and enhance their well-being and quality of life, better equipping them to tackle modern living challenges. [The Global Wellness Institute \(2015\)](#) attributes this shift to the development of the wellness industry, encompassing various aspects such as alternative medicine, medical treatments, nutrition, fitness programs, spa activities, and wellness tourism. When selecting a tourist destination, the appeal of landmarks is diminishing, with tourists increasingly prioritizing elements that improve their quality of life, allowing them to relax, rejuvenate, and experience greater happiness. This shift has led to changes in destination-level marketing communications ([Huber et al., 2013](#)).

[Smith and Puczkó \(2009\)](#) define health tourism as a form of wellness and medical tourism that encompasses related activities, intertwining and connecting them to a certain extent. Wellness tourism targets individuals in good health seeking treatments to maintain physical, mental, and spiritual well-being ([Smith & Puczkó, 2009](#)). Wellness centers, including medical wellness centers, focus on delivering services under proficient medical supervision ([Joppe, 2010](#); [Mueller & Kaufmann, 2001](#)). This product emphasizes non-invasive treatment and rehabilitation, overseen by professional medical staff, integrating health and wellness services using thermal and mineral waters in Serbia. Health-rehabilitation institutions in Serbia have significant potential for advancing health tourism, given their resources, skilled personnel, and modern equipment. Adapting services to meet contemporary market trends is crucial, serving both health-conscious tourists and those seeking wellness maintenance under medical supervision.

In terms of tourists' overnight stays, spa and mountain destinations in Serbia are particularly popular among domestic tourists ([Gavrilović, 2022](#)). These destinations house health and rehabilitation facilities offering effective medical and wellness services, addressing various health issues and improving overall health conditions. The rapid growth of wellness tourism, expanding at twice the rate of tourism as a whole with an annual growth rate of 6.5% ([The Global Wellness Institute, 2018](#)), presents an opportunity to enhance business operations and modernize the offerings of these institutions. Developing specific wellness content can attract a larger number of individuals seeking to improve health and prevent unwanted conditions. Consequently, health-rehabilitation institutions can cater to a broader range of users beyond patients with diagnosed medical conditions ([Giannake et al., 2023](#)). Leveraging their resources, strategic potential, modernization efforts, and creation of contemporary wellness content, health and rehabilitation institutions have the potential to become leaders in

providing wellness services and driving wellness tourism in Serbia, both nationally and internationally.

The wellness model presented by [Mueller and Kaufmann \(2001\)](#) embodies the harmony of body, mind, and spirit, and encompasses several dimensions: self-responsibility, physical fitness and body care, balanced nutrition, mental activities and education, rest and meditation, social engagement, and environmental awareness. Wellness is a dynamic concept, and at different phases of an individual's life, certain dimensions may hold greater prominence in order to achieve a better balance across all dimensions by adopting healthy habits and improving overall quality of life and health status ([Bushman, 2017](#)).

In this paper, physical activity and body care as a significant dimension within the wellness model will be explored. Their importance will be examined, and the indicators that define them will be identified. The objective is to assess whether there is a potential for health and rehabilitation centers in Serbia to incorporate this type of service and integrate specific wellness content, thereby providing high-quality and innovative wellness offerings.

The purpose of this paper is to determine the presence of physical activity and body care programs offered by health and rehabilitation institutions based on the determined indicators. Based on the above, the following research questions were stated:

1. Do the health-rehabilitation centers offer wellness services and do they have the potential to develop the wellness offer by applying appropriate wellness programs?
2. Do the health-rehabilitation centers enable the implementation of wellness programs by applying appropriate content that includes physical activity and body care, and to what extent are the services represented in accordance with the importance they have on the health of users?

Additionally, the paper looks into the opportunities for improving the institution's offerings in line with the significance of physical activity and physical care in wellness program implementation.

2. Wellness concept in health and rehabilitation institutions

Wellness tourism is recognized as a subset of health tourism, and it can be defined as the combination of all the relationships and phenomena resulting from people's travels and visits to tourist destinations with the primary objective of preserving and improving their health status ([Majeed & Gon Kim, 2023](#); [Mueller & Kaufmann, 2001](#); [Živković & Brdar, 2018](#)). The growth of health and wellness tourism has been influenced by changes in demographic structures and lifestyles, as well as the need to reduce stress among the working population ([Krstić & Živanović, 2020](#); [Vidanović et al., 2021](#)). Consequently, tourists are increasingly focusing on prevention by opting for adapted forms of travel ([Đurađević, 2017](#); [Gan et al., 2023](#); [Laesser, 2011](#)). Wellness tourists frequently opt for specialized tourist accommodations offering professional services and personalized care. These facilities offer a comprehensive range of services, including physical activity, body care, tailored nutrition programs, relaxation, meditation, mental activities, and educational offerings. Visitors to spa destinations may seek recovery from diagnosed health issues, prevention of unwanted conditions, or simply relaxation through desired wellness services ([Lee & Kim, 2023](#); [Nićiforović & Stajić, 2021](#)). In their predictions for the development of health and wellness tourism and the wellness industry, [Smith and Puczko \(2009\)](#) introduced the term "wellpitals", which represents a fusion of hospitals and wellness centers. Wellpitals would integrate specially designed medical services with suitable wellness facilities, aiming to create a unique experience that diminishes the hospital-like environment. This approach can

be realized through business enhancement and the transformation of health-rehabilitation centers and spa resorts. By adopting this model, institutions can gain a competitive edge in the wellness tourism market, as demonstrated by examples like Special Hospital Čigota in Zlatibor and Special Hospital Merkur in Vrnjačka Banja, which have embraced a similar concept.

Health-rehabilitation centers, due to their structure and organization as health institutions (Official Gazette of RS, 2013), are well-positioned to address modern trends and challenges where wellness is considered essential for preserving and enhancing individuals' quality of life. Leveraging their internal resources, these institutions have the capacity to offer an enhanced wellness experience to users during their stay at selected tourist destinations (Smith & Puczko, 2009). Health-rehabilitation centers utilize their multidisciplinary staff comprising professionals from various fields such as medicine, physiotherapy, physical education, nutrition, and psychology to innovate the user experience by integrating physical and sports medicine, fitness programs, and utilizing diagnostic procedures and facilities.

2.1. Exploring the synergy of physical activity and body care in wellness offerings

Research has consistently shown the detrimental effects of a sedentary lifestyle on health (Bauman et al., 2013). However, engaging in properly programmed physical activity in various forms has been proven to reduce the risk of several diseases, including cardiovascular diseases, high blood pressure, stroke, type 2 diabetes, colon cancer, thyroid gland problems, and others (Lee et al., 2012). Implementing appropriately tailored fitness and wellness programs can lead to improvements in body composition, particularly in cases of obesity, and have positive effects on insulin sensitivity, blood pressure reduction, endothelial function improvement, and cognitive function enhancement (Lee et al., 2012; Paffenbarger et al., 1991; Warburton et al., 2006).

By customizing the exercise program and incorporating appropriate additional activities, the individual's adaptation to the selected procedures is optimized, leading to the achievement of desired outcomes (Zaciorski & Kremer, 2009). It is important to acknowledge that individuals vary in their psychophysical states, and as a result, the same program can have different effects on different individuals, potentially producing positive outcomes for some and negative outcomes for others.

2.1.1. Determining the current state of an individual's organism

Through the utilization of modern equipment and specific tests, it is possible to assess the user's current state, functional abilities, and skills in relation to the required parameters. Additionally, the effectiveness of various medical rehabilitation treatments, which include a physical activity program following a specific medical intervention, can be evaluated (Ilić, 2006).

The advancement of diagnostic centers facilitates the implementation of measurement procedures in both laboratory and real-life conditions, including training or sports competitions. These centers utilize procedures from multiple disciplines such as medicine, anthropology, physiology, biochemistry, endocrinology, biomechanics, psychology, and nutrition to collect pertinent information (Karalejić & Jakovljević, 2009). Consequently, it is essential for health and rehabilitation centers to have appropriate diagnostic procedures and equipment to gather essential data on service users' current condition and monitor their progress throughout the prescribed program.

2.1.2. Programs for physical activity within the realm of wellness

The implemented programs may vary depending on the desired goals and the specific center responsible for implementing wellness programs. Common program models include fitness programs, body composition correction programs (such as weight reduction and tissue restructuring), improvement of functional abilities, recreational exercises, sports programs, group programs, indoor and outdoor sports games, walking, nature-based activities, rehabilitation-therapeutic programs, programs suitable for home conditions, as well as recovery methods and relaxation techniques (Hoffman & Knudson, 2018).

Fitness programs

- Excessive body weight has become a prevalent issue affecting a significant portion of the population, primarily characterized by an increase in fat tissue and fluid retention. This not only poses aesthetic concerns but also impacts the overall health (Bianco, 2010; Stojiljković, 2005). Implementing a body weight reduction program, following a comprehensive diagnosis of the individual's current condition, can effectively address this problem by promoting weight loss and fat tissue reduction, consequently enhancing the individual's quality of life (Said et al., 2017).
- By employing a tissue restructuring program, complemented by an appropriate dietary regimen devised by qualified professionals, individuals can achieve desired changes in body composition, including reduced fat deposits and increased muscle mass, tailored to their specific needs (Stojiljković, 2005).
- Improving functional status through aerobics, strength, and endurance programs enables individuals to optimize their overall physical condition (Stojiljković, 2005).
- Sports programs for active athletes aim to provide tailored activities suitable for their specific needs and stage within the competitive cycle (Zaciorski & Kremer, 2009). These activities, overseen by qualified experts, focus on achieving desired outcomes. A proposed fitness program for health-rehabilitation facilities aims for a holistic approach to physical activity and conditioning, with a focus on enhancing athletes' physical condition, performance, and injury prevention. It includes customized training methods for various sports, incorporating elements such as nutrition, mental health support, and injury prevention strategies (Mohammadian et al., 2021; Muller et al., 2000).
- The sports recreation fitness program provides a valuable opportunity for people of all ages and abilities to participate in physical activity and improve their overall fitness (Stojiljković, 2005). It offers a variety of sports activities tailored to diverse interests and fitness levels. Engaging in sports recreation motivates individuals to surpass their limitations by honing skills specific to their chosen sports discipline.

Rehabilitation-therapeutic program

- Health-rehabilitation centers diagnose physical issues and create tailored rehabilitation-therapeutic programs for recovery (Means et al., 2005). Before resuming activity, it is crucial to restore tissue to a specific load level to prevent reinjury (Petty & Moore, 2011).

Activities in the facility

- Depending on the infrastructure of the institution, various aerobic group programs, team sports, and recreational games can be implemented using different indoor activities, which can have a positive impact on individuals' health and user satisfaction.
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Outdoor activities

- For individuals leading a sedentary lifestyle or older people with certain health issues, the primary recommended activity by the center is organized walks with the supervision and guidance of experts (Powers & Howley, 2018). Organized walks along nature paths in tourist destinations can be appealing to many people, allowing them to appreciate the beauty of the places they visit while engaging in physical activity.

Activities outside the institution

- To support users in maintaining their activities independently and mitigate negative impacts, health-rehabilitation centers can offer specially designed home-based programs administered by qualified experts. Utilizing modern technologies like cameras, computers, smartwatches, and mobile devices enables the remote monitoring of users' progress and ongoing communication. Advanced smartwatches provide various functionalities such as connecting with the institution, following prescribed exercise routines, and continuously tracking activities for later analysis (Jat & Grønli, 2022). This approach enhances service delivery, fosters better communication, and fosters long-term relationships with users, thereby encouraging repeat visits and positive recommendations, ultimately promoting the tourist destination.

2.1.3. Wellness recovery and medical recovery

The wellness recovery and medical recovery programs will form an integral part of the fitness program in health-rehabilitation institutions. These programs aim to enhance individuals' physical and mental well-being through targeted exercises, rehabilitation techniques, and specialized treatments (Narziev & Latibov, 2021). As a variety of physical activities and exercises may induce fatigue, prioritizing physical well-being and recuperation becomes crucial to fostering optimal health conditions. This entails stress reduction, fatigue alleviation, muscle tension relief, and joint discomfort mitigation through appropriate exercises and treatments (Ilić, 2006). Achieving this objective requires the utilization of suitable recovery programs and medical treatments, such as therapeutic mud and medicinal water, readily available in health-rehabilitation facilities. Therefore, seeking guidance and advice from healthcare professionals is highly advisable to effectively accomplish these objectives. Various modalities can be utilized for recovery, including:

- Sauna: Research conducted by Mero et al. (2015) highlights the benefits of sauna therapy in promoting recovery.
 - Massage: Studies such as Davis et al. (2020) emphasize the positive effects of massage therapy on recovery.
 - Cryotherapy: Lombardi et al. (2017) investigate the use of cryotherapy as a recovery modality.
 - Cold and hot baths: Bieuzen et al. (2013) discuss the benefits of using cold and hot baths in the recovery process.
 - Stretching: Nelson et al. (2001) explore the role of stretching exercises in promoting recovery.
 - Breathing exercises: Srivastava et al. (2005) emphasize the potential benefits of incorporating breathing exercises into the recovery routine.
 - Healing mud: Antúnez et al. (2013) and Liu et al. (2013) investigate the use of healing mud in the recovery process.
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By incorporating these modalities into the body care routine, individuals can enhance their physical health, promote overall well-being, and minimize the potential negative effects of exercise.

3. Materials and methods

For the purposes of this research, a suitable measurement instrument was developed based on the relevant wellness model (Mueller & Kaufmann, 2001). This instrument was designed to align with the specific requirements and demands of health-rehabilitation institutions. The aim was to gather information pertaining to the wellness offerings of health and rehabilitation institutions situated in tourist destinations within the Republic of Serbia. These offerings specifically pertain to physical activity and body care, which serve as significant indicators of the wellness provisions. In the preceding chapter (2.1), the wellness offerings were examined in relation to the indicator of physical activity and body care, considering each program individually. The primary source of data consisted of an analysis of the information available on the official websites and social media platforms of 20 institutions. Through this analysis, a total of 24 relevant wellness programs and activities were identified and evaluated. These programs and activities were categorized into three distinct units:

- The first part involves the diagnostic assessment of the user's current condition through four programs: analysis of body structure and anthropometric measurements; physiological measurements; analysis of motor skills and movement skills; interview and psychological assessment.

- The second part focuses on different physical activity programs offered by the institutions, including:

- Fitness programs, which encompass: reduction of body weight; restructuring of tissues; improvement of functional status; sports recreation; sports program.
- Rehabilitation-therapeutic program, which involves: correction of deformities and stimulation of proper growth and development of children; recovery after medical intervention; stretching and relaxation programs with exercises.
- Hall activities, which include: group programs and team sports.
- Outdoor activities, such as: walks with expert supervision; activities in nature; sports and recreational activities.
- Activities outside the facility, which entail programs of activities in home conditions after staying in the institution.

- The third part focuses on recovery and medical recovery and identifies six recovery modalities: sauna; massage; cryotherapy; cold and warm baths; stretching and breathing exercises; mud therapy.

An investigation was conducted into the presence and quantity of services offered by each program in the wellness offerings of health and rehabilitation institutions, with the intention of assessing the success of these centers in relation to the number of wellness programs available and the expansion of their offerings. To evaluate institutions regarding the presence and quantity of programs accessible to users, serving as indicators for wellness offerings related to physical activity and body care, the available programs were organized based on the examined indicator using Sturges' rule ($k = 1 + 3.3 \log N$) (Mutavdžić & Nikolić, 2018). This method facilitated the assignment of appropriate scores to each center based on their performance, thus enabling a comparison between centers with high ratings and those with low ratings.

Considering the importance of initiative effectiveness and building lasting connections with participants, our investigation aims to determine if there is a significant difference in the overall provision of wellness programs (total number of programs – TP) between institutions offering external physical activity programs and those that do not. To address this inquiry, the independent t-test will be utilized, a statistical method employed to assess whether two sets of data share identical mean values. Before conducting this test, the Shapiro-Wilk test was performed to determine if the data follows a normal distribution.

The collected information was analyzed using statistical software IBM SPSS Statistics 27 and presented in tabular form within the paper.

4. Results and discussion

The collected data, presented in Table 1, focuses on the availability of the physical activity program and diagnostics of the current condition as indicators of the wellness offer related to physical activity and body care.

Table 1: Descriptive statistics for the indicator physical activity and body care of health and rehabilitation centers (Diagnostics and physical activities)

Dimensions of individual PA and body care	Variables (Programs)	The number of institutions containing a programme	The number of institutions not containing a programme	% Yes No		MEAN (N=20)	SD (N=20)
				% Yes	% No		
Diagnostics of the current state	Body structure, Physiological measurements, Abilities and skills, Interview and psychological assessment (4 programs)	20	0	100	0	1	0
Physical activity		20	0	100	0	1	0
	<i>Fitness programs</i>	18	2	90	10	0.90	0.31
	Body weight reduction	6	14	30	70	0.30	0.47
	Tissue restructuring	7	13	35	65	0.35	0.49
	Improvement of functional status	12	8	60	40	0.60	0.50
	Sports recreation	14	6	70	30	0.70	0.47
	Sports program	5	15	25	75	0.25	0.44
	<i>Hall activities</i>	18	2	90	10	0.90	0.31
	Group programs	17	3	85	15	0.85	0.37
	Team sports	5	15	25	75	0.25	0.44
	<i>Outdoor activities</i>	17	3	85	15	0.85	0.37
	Walks with expert supervision	12	8	60	40	0.60	0.50
	Activities in nature	8	12	40	60	0.40	0.50
	Sports and recreational activities	9	11	45	55	0.45	0.51
	<i>Activities outside the facility - in home conditions</i>	7	13	35	65	0.35	0.49
	<i>Rehabilitation and therapeutic program (3pr.):</i> Correction of deformities and stimulation of growth and development of children, Recovery after medical intervention, Stretching and relaxation program	20	0	100	0	1	0

Source: Authors' research

Due to the specificity of health-rehabilitation institutions and the primary services they provide, Table 1 provides an overview of the presence of diagnostics of the current state and physical activity programs in these institutions for the indicator of physical activity and body care. All 20 examined institutions offer diagnostics of the current state of users, utilizing four specific programs: body structure analysis and anthropometric measurements, physiological measurements program, analysis of the ability to perform movement skills, and interview and psychological assessment of the individual. These findings indicate that the institutions possess the necessary resources to assess the current state of individuals and prescribe appropriate activity programs to help them achieve their desired goals.

Examining the presence of physical activity programs, Table 1 reveals that all institutions implement various forms of physical activity. Among the examined institutions, 90% (18 institutions) offer fitness programs, while 10% (2 institutions) do not provide such programs. The most prevalent fitness program is sports recreation, offered by 14 institutions (70%), followed by the sports program, available in 5 institutions (25%). Six institutions (30%) offer the body weight reduction program, while 14 institutions (70%) do not. The tissue restructuring program is offered by 7 institutions (35%), while 13 institutions (65%) do not include it in their programs. The improvement of functional status program is present in 12 institutions (60%). Additionally, 90% of the institutions (18) offer activities in the hall, with 17 institutions (85%) providing group programs and 5 institutions (25%) offering team sports programs. Outdoor activities are available in 85% of the centers, with 12 institutions (60%) offering supervised walks, 8 institutions (40%) providing activities in nature, and 9 institutions (45%) offering sports and recreational activities. Furthermore, 35% of the institutions (7) have programs that allow users to engage in activities at home.

All 20 institutions (100%) include a rehabilitation-therapeutic program of physical activity as a part of their services, which is their primary focus. These programs encompass the correction of deformities and stimulation of proper growth and development in children, recovery after medical intervention, as well as stretching and relaxation programs with exercises.

Overall, the findings from Table 1 highlight the comprehensive approach of health-rehabilitation institutions in providing diagnostics, physical activity programs, and rehabilitation-therapeutic services to address the wellness needs of their users.

Table 2 presents data regarding the availability of the recovery and medical recovery program in health and rehabilitation centers for the indicator of physical activity and body care.

Table 2: Descriptive statistics for the indicator physical activity and body care of health and rehabilitation centers (Recovery and medical recovery)

Dimensions of individual PA and body care	Variables (Programs)	The number of institutions containing a programme	The number of institutions not containing a programme	% Yes	% No	MEAN (N=20)	SD (N=20)
Recovery and medical recovery		20	0	100	0	1	0
	Sauna	14	6	70	30	0.70	0.47
	Massage	20	0	100	0	1	0
	Cryotherapy	4	16	20	80	0.20	0.41
	Cold and hot bath	19	1	95	5	0.95	0.22
	Stretching and breathing exercises	14	6	70	30	0.70	0.47
	Mud	12	8	60	40	0.60	0.50

Source: Authors' research

The recovery and medical recovery program is available in all institutions, totaling 20 (100%), as shown in Table 2. Among the special services within the program, massages are provided by 100% of the institutions, while cold and hot baths are available in 95% of them, with a total of 19 institutions. Cryotherapy is the least represented, being offered in only 4 institutions, accounting for 20% of the total sample. Stretching and breathing exercises are available in 14 institutions (70%), while the mud program is offered by 12 institutions (40%).

To assign scores to institutions based on the number of available programs in the physical activity and body care indicator, Sturges' rule was applied, which determines the number of intervals (k) using the formula $k = 1 + 3.3 \log N$, where N represents the sample size. In our case, since 20 health-rehabilitation institutions were examined, N is 20, resulting in k being approximately 5.29, thus leading to 5 intervals. The width of each interval (i) is calculated using the formula $i = (x_{\max} - x_{\min})/k$, where x_{\max} and x_{\min} represent the largest and smallest values in the sample, respectively (Mutavdžić & Nikolić, 2018).

Given that the minimum number of available services for the physical activity and body care indicator is 1, and the maximum is 24, i is determined to be 4.6. Based on this information, the range was divided into intervals: 1-4, 5-9, 10-14, 15-19, and 20-24. In the first interval, the institution with the fewest services receives a score of 1, while the institution with the highest number of services falls into the last interval and receives a score of 5. It is worth noting that establishments without any available services were assigned a score of 0. The scores assigned to the institutions in relation to the number of available programs in the physical activity and body care indicator are presented in Table 3, which reflects the collected information.

Table 3: Evaluation of health and rehabilitation centers in relation to the indicator of wellness offer – Physical activity and body care

Health and rehabilitation center	Destination	No of programs (24)	M	SD	Mark 1-5
SB Čigota	Zlatibor	20	0.83	0.38	5
SB Merkur	Vrnjačka Banja	19	0.79	0.41	4
SB Rusanda, Melenci	Banja Rusanda	15	0.63	0.49	4
SB Banja Kanjiža	Banja Kanjiža	16	0.67	0.48	4
SB Junaković	Apatin	20	0.83	0.38	5
SB "Dr Borivoje Gnjatic"	Stari Slankamen	16	0.67	0.48	4
SB Termal	Banja Vrdnik	18	0.75	0.44	4
SB Banja Koviljača	Banja Koviljača	17	0.71	0.46	4
SB Bukovička banja	Arandelovac	13	0.54	0.51	3
SB Sokobanja	Sokobanja	18	0.75	0.44	4
SB Gamzigrad	Gamzigradska Banja	15	0.63	0.49	4
SB Ivanjica	Ivanjica	20	0.83	0.38	5
SB Agens	Mataruška Banja	11	0.46	0.51	3
SB Ribarska Banja	Ribarska Banja	15	0.63	0.49	4
Institut Niška Banja	Niš	19	0.79	0.41	4
SB Gejzer Sijarinska Banja	Leskovac	14	0.58	0.50	3
SB Bujanovac	Bujanovac	13	0.54	0.51	3
SB Selters Banja	Mladenovac	17	0.71	0.46	4
SB Prolom Banja	Prolom Banja	15	0.63	0.49	4
SB Atomska Banja	Gornja Trepča	14	0.58	0.50	3

Source: Authors' research

In Table 3, it can be observed that among the health and rehabilitation institutions, 12 of them received a rating of 4 based on the total number of services related to the indicator of wellness offer, physical activity, and body care. Five institutions received a rating of 3, while three institutions achieved a rating of 5. None of the institutions received ratings of 1 or 2. SB Banja Junaković, SB Ivanjica, and SB Čigota were awarded the highest average rating of 0.83, indicating their diverse range of services in the physical activity and body care domain, leading to an overall grade of 5. SB Merkur and the Institute Niška Banja, both offering 19 services, obtained an average rating of 0.79, placing them close to an overall grade of 5. The data showing that a total of 15 institutions received ratings of 4 and 5 with high average scores indicates that health and rehabilitation institutions are responsive to market trends and employ available resources to deliver quality wellness services to their users.

Table 4 provides a comparison of institutions with the two highest average ratings and institutions with the two lowest ratings, along with the distribution of implemented services relative to the total number of programs related to the indicator of physical activity and body care. SB Banja Junaković, SB Ivanjica, and SB Čigota, each with 20 services and an average rating of 0.83, were analyzed to determine the distinguishing parameters contributing to their success in the wellness offer field. Additionally, SB Merkur and Institut Niška Banja, with 19 services and an average rating of 0.79, were added to the analysis. The institutions with the lowest ratings are Agens with a score of 0.46 and Bukovička Banja and Bujanovac with a score of 0.54. The distribution of programs is categorized under the following services: diagnostics of the current state (DCT - 4 programs), fitness programs (FP - 5 programs), rehabilitation and therapeutic program (RTP - 3 programs), physical activities program in the hall (PAPH - 2 programs), outdoor physical activities (OPA - 3 programs), physical activity in home conditions program (PAHC - 1 program), and recovery and medical recovery program (RMR - 6 programs).

Table 4: Comparative presentation and distribution of services of the best rated health and rehabilitation institutions (A) and institutions with the lowest average rating (B)

Institution	Rating	DCT (4) (%)	FP (5) (%)	RTP (3) (%)	PAPH (2) (%)	OPA (3) (%)	PAHC (1) (%)	RMR (6) (%)
Čigota	A	4 (100)	5 (100)	3 (100)	1 (50)	3 (100)	1 (100)	3 (50)
Banja Junaković	A	4 (100)	3 (60)	3 (100)	1 (50)	3 (100)	1 (100)	5 (83.3)
Ivanjica	A	4 (100)	3 (60)	3 (100)	2 (100)	3 (100)	1 (100)	4 (66.7)
Merkur	A	4 (100)	4 (80)	3 (100)	1 (50)	1 (33.3)	1 (100)	5 (83.3)
Niška Banja	A	4 (100)	4 (80)	3 (100)	2 (100)	2 (66.7)	1 (100)	3 (50)
Bukovička Banja	B	4 (100)	0 (0)	3 (100)	1 (50)	0 (0)	0 (0)	5 (83.3)
Bujanovac	B	4 (100)	1 (20)	3 (100)	1 (50)	0 (0)	0 (0)	4 (66.7)
Agens	B	4 (100)	1 (20)	3 (100)	0 (0)	1 (33.3)	0 (0)	2 (33.3)

Source: Authors' research

Based on the data presented in Table 4, it is evident that fitness programs (FP) demonstrate a significant presence in institutions that have attained high ratings (A). SB Čigota offers all five programs, while SB Merkur and the Institute Niška Banja provide 4 out of 5 fitness programs, accounting for 80%. SB Ivanjica offers 3 fitness programs, equivalent to 60%. The current state diagnostics (DCT) is available in all institutions and includes all four specific programs. The program of physical activity in the hall (PAPH) is maximally implemented by SB Ivanjica and the Institute Niška Banja, accounting for 2 out of the total 2 programs. The program of outdoor physical activities (OPA) is fully implemented by the top-rated institutions, SB Čigota, Ivanjica, and Banja Junaković, with 3 out of a total of 3 programs. All top-rated institutions offer the program of physical activities in home conditions (PAHC),

achieving a 100% implementation rate. However, none of the top-rated institutions offers the maximum number of recovery and medical recovery programs (RMR). SB Banja Junaković and SB Merkur provide 5 out of 6 programs, corresponding to 83.3%, Ivanjica offers 4 programs (66.7%), and SB Čigota and the Institute Niška Banja offer 3 programs (50%) out of the total of 6. It should be noted that all institutions provide the maximum number of rehabilitation and therapeutic programs (RTP). From Table 4, it is evident that the lowest-rated institutions (B) lack a program for physical activities in home conditions (PAHC). Additionally, the program for physical activities outdoors (OPA) is only available at SB Agens, accounting for 1 out of 3 programs, representing 33.3%. SB Bukovička Banja and Bujanovac offer a program for physical activities in the hall (PAPH), with one out of 2 programs. SB Bukovička Banja does not provide any fitness programs (FP), while SB Agens and Bujanovac offer one out of 5 programs, which corresponds to only 20%. In terms of the recovery and medical recovery program (RMR), SB Bukovička Banja has the highest number of programs, offering 5 out of a total of 6, representing 83.3%. SB Bujanovac provides 4 programs, equivalent to 66.7%, while SB Agens offers 2 programs, accounting for 33.3% of the total number.

In their study, [du Toit et al. \(2013\)](#) found that individuals with low physical activity levels exhibit poorer performance and are at higher risk of various health problems compared to active individuals, confirming the positive impact of appropriately dosed physical activity on overall well-being. The examination of health and rehabilitation institutions revealed that all institutions offer some form of physical activity, with the difference lying in the presence of specific programs that distinguish them from competitors. Fitness programs are present in 90% of institutions, with the most prevalent programs being sports recreation and improving physical condition, available in 70%, i.e. 60% of institutions, respectively. Some institutions have recognized the significant issues faced by individuals with excess weight, which is often associated with various diseases resulting from modern lifestyles. Consequently, they have developed weight reduction programs, which are offered by 30% of institutions. This information emphasizes the need for more health and rehabilitation institutions to develop appropriate programs that enable overweight individuals to improve their physical status or take preventive measures against potential health problems.

Indoor and outdoor activities are offered by 90%, i.e. 85% of institutions, respectively. Among the indoor activities, group programs are more prevalent, representing 85% of institutions, while team sports programs are available in 25% of institutions. Institutions have the capacity to implement group programs, which allow them to positively influence the health status of users through creative and appropriately tailored approaches, fostering overall well-being. Regarding outdoor activities, the most common program is walking under the supervision of experts, offered by 60% of institutions. Activities in nature are available in 40% of institutions, and sports and recreational activities are offered by 45% of institutions. Walking, with its relatively low motor skill requirements and the guidance provided by experts, can be an attractive form of physical activity. It allows individuals to explore the beauty of their chosen tourist destination while improving their physical health. It is essential for a greater number of institutions to design programs that incorporate walking and other activities in nature, offering tourists a creative and meaningful way to spend their vacation while experiencing the natural environment.

All institutions offer rehabilitation-therapeutic programs, providing users with the opportunity to address the negative impacts of modern lifestyles in a timely manner or prevent the worsening of existing issues through institution-led activities.

Dosed physical activity holds multifaceted importance for individual health and improves quality of life ([Gianuzzi et al., 2003](#); [Leon et al., 2005](#)). According to [Spence and Lee](#)

(2003), there exists a biologically determined threshold beyond which individuals can engage in physical activity. Therefore, diagnostic procedures are necessary to assess the current state of individuals and their functional capabilities, enabling the implementation of specific physical activity programs that yield appropriate results while avoiding adverse health effects. All examined health-rehabilitation institutions (100%) offer appropriate diagnostic procedures, indicating that the essential prerequisite has been met. This allows the professional staff to prescribe suitable wellness programs to the users.

Limited timeframes for visits to health-rehabilitation institutions can hinder long-term commitment to lifestyle changes and ongoing health maintenance post-program completion. This may lead to regression to previous activity levels due to lack of motivation, knowledge, and skills. To address this, physical activity programs for continued engagement at home are essential. Regular feedback and support from institution experts, along with occasional check-ins, ensure correct activity performance. Utilizing modern technology like smartphones and health-oriented applications enhances program implementation, fostering constant communication and long-term relationships between the institution and users, potentially leading to repeat visits and recommendations. As a smaller number of health-rehabilitation institutions have adopted such programs (35% of them), there is an opportunity for institutions to focus on improving the wellness offer in this significant aspect. This will provide a comprehensive service and establish lasting relationships with users, further enhancing the effectiveness of prescribed activities.

Given the significance of the efficacy of implemented initiatives and the establishment of enduring connections with participants, our investigation seeks to ascertain the presence of a substantial variance in the aggregate provision of the wellness program (the total number of programs – **TP**) between institutions that provide a physical activity program conducted externally (Group 1) and those that do not (Group 2). To address this inquiry, the independent t-test will be employed, a statistical method used to evaluate the null hypothesis regarding whether two sets of data have identical mean values, namely $H_0(\mu_1 = \mu_2)$. In the present example, equivalence in the mean number of programs offered by institutions providing physical activities outside their premises is sought to be ascertained, in comparison to those that do not extend such programs. In formulating the alternate hypothesis, the premise of non-equality has been adopted (i.e., $H_1(\mu_1 \neq \mu_2)$), as there is no a priori basis for presupposing that the mean number of programs in one group is unilaterally greater or lesser than the other. It is requisite for the data to exhibit independence, denoting lack of interrelation. This presumption remains valid, as the service offerings of one institution are seen to bear no influence on those of another. To confirm the hypothesis of normal distribution, the Shapiro-Wilk test will be used (Table 5).

Table 5: Shapiro-Wilk test

Tests of Normality				
	Group	Shapiro-Wilk		
		Statistic	df	Sig.
TP	Group 1	0.813	7	0.055
	Group 2	0.946	13	0.537
*. This is a lower bound of the true significance.				
a. Lilliefors Significance Correction				

Source: Authors' research

From Table 5, it is observed that for both groups (Group 1 and Group 2), the p-value of the test or the power of the test exceeds 0.05, the standard threshold of significance for statistical

tests. Therefore, the null hypothesis regarding the normality of our data is confirmed. Consequently, the analysis will proceed utilizing the independent t-test (Table 6).

Table 6: Levene's Test for Equality of Variances

Group Statistics											
		Group	N	Mean	Std. Deviation	Std. Error Mean					
TP		Group 1	7	18.71	1.604	0.606					
		Group 2	13	14.62	2.022	0.561					
Independent Samples Test											
		Levene's Test		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
										Lower	Upper
TP	Equal variances assumed	0.408	0.531	4.619	18	< .001	4.099	0.887	2.234	5.963	
	Equal variances not assumed			4.964	15.129	< .001	4.099	0.826	2.340	5.858	

Source: Authors' research

The analysis reveals that the p-value of Levene's Test for Equality of Variance (Table 6) exceeds the significance threshold of 0.05. Consequently, the null hypothesis is rejected in favor of the alternative, indicating a statistically significant variance in the mean value of the program offer between centers with a physical activity program outside the institution and those without such a program. This finding suggests that institutions without an external physical activity program should enrich their offerings with high-quality programs that align with contemporary trends. By doing so, institutions can enhance their competitiveness in the wellness tourism market and provide customers with comprehensive wellness experiences, fostering lasting relationships. From the user's perspective, particularly regarding the range of services offered and the likelihood of sustaining activities post-visit, this outcome highlights the preference for institutions offering a broader selection of suitable programs, including external activities.

All institutions offer recovery and medical recovery programs, with massages being the dominant service at 100% availability, followed by cold and warm baths at 75%. By offering a diverse range of recovery modalities, institutions enhance their competitiveness in the wellness market. However, it is crucial to coordinate these modalities with the selected physical activity program to maximize their effectiveness.

5. Conclusion

[Konu and Laukkanen \(2010\)](#) research aimed to explore tourists' motivations as indicators of their interest in health and wellness tourism compared to those uninterested in this type of tourism. Findings revealed that individuals with prior well-being holiday experiences, considering factors like the physical environment, natural attractions, rejuvenation, and contemporary destinations, were significantly more inclined towards well-being holidays. Studies on tourist destinations' wellness offerings have highlighted growing demand for wellness services, particularly among affluent and active age groups in North America, Scandinavia, and Western Europe ([Csirmaz & Pető, 2015](#)). This demand stems from the pursuit of a higher quality of life and the need for relaxation and rejuvenation. Rejuvenation significantly influences the motivational aspects of most wellness tourists ([Koh et al., 2010](#)).

Extensive research has identified social interaction, thrills, and relaxation as fundamental motivations for wellness tourists (Koh et al., 2010; Mak et al., 2009). Koncul (2012) extensively examines various facets of wellness tourism, noting that hotels are rapidly embracing contemporary trends by offering diverse wellness services like spa therapies, cosmetic treatments, physical activities, and rehabilitation programs.

At the level of the Republic of Serbia, wellness tourism is primarily provided by spa destinations housing health and rehabilitation facilities, offering both medical and wellness services as core offerings. Denda and Stojanović (2017) analyzed factors contributing to wellness tourism development in Sokobanja, finding spa tourism to be prominent, with seasonal tourist traffic mainly from the domestic market. While resources are deemed sufficient, modernizing infrastructure and integrating technological advancements are crucial to align offerings with market trends. Additionally, Dini and Pencarelli (2022) highlight the diverse components within the wellness concept, including hot springs, spas, medical tourism, holistic care, sports, nature, culture, spirituality, and events. These dimensions can function as individualized tourist offerings targeting specific market segments or integrated components within a comprehensive tourist concept.

Contemporary trends in health tourism require tourist destinations to continuously innovate and adapt to environmental changes, creating new business opportunities. This paper emphasizes the importance of adjusting marketing strategies to enhance business performance and gain a competitive edge. Introducing novel wellness packages and innovative solutions for tourists aimed at comprehensive well-being presents new prospects for health and rehabilitation institutions in Serbia. This enables them to effectively respond to environmental shifts and secure a successful market position. The paper focuses on analyzing the specific characteristics of health-rehabilitation institutions' offerings to develop tailored wellness packages. It provides recommendations for future wellness package development in alignment with current health and wellness tourism trends, aiming to establish a competitive advantage internationally and attract more foreign tourists.

Health and rehabilitation centers excel in providing top-notch comprehensive wellness experiences, catering to individual health needs with modern services and effective solutions. Their holistic approach, assessing and tailoring programs to each person's condition, consolidates wellness services in one convenient location. Hosting these centers presents opportunities for tourist destinations to distinguish themselves in the wellness tourism market by offering professional services. These centers prioritize physical activity and body care, crucial elements in the wellness model, with capacity and programs to implement comprehensive wellness initiatives. Tailoring unique programs encompassing various physical activities is essential for desired outcomes. Promoting these initiatives can elevate destinations as providers of high-quality wellness services globally.

Limitations in the research stem from incomplete data on programs, lacking clear definitions on official websites or social media platforms. Some institutions may offer activities within programs or create specialized activities after diagnostic examinations, highlighting the need for improved marketing to define services clearly. Future research should explore other wellness dimensions and opportunities for expanding offerings in health and rehabilitation institutions, crucial for their role in Serbian wellness tourism. Effective marketing is essential to promote wellness, benefiting public health and mitigating disease prevalence. Popularizing wellness in tourist destinations fosters economic stability and local development, creating job opportunities. Health-rehabilitation centers can establish a new business model, enhancing financial independence and directing income towards further development and modernization.

Conflict of interest

The authors declare no conflict of interest.

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